

SciCOM 100 Conference 2018
Science communication and democratic South Africa:
prospects and challenges

5 - 7 November 2018

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Science and Technology

SciCOM

South African Research Chair
in Science Communication



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SciCOM 100 Conference 2018

Science communication and democratic South Africa: prospects and challenges

5 – 7 November 2018

Organised by the South African Research Chair in Science Communication (SciCOM)

Hosted by the Centre for Research on Evaluation, Science and Technology (CREST)



South African Research Chair
in Science Communication

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November 2018
Stellenbosch
South Africa



Dear participants,

WELCOME TO SCICOM 100

You are about to take part in the first South African conference on research in the field of science communication. On behalf of my team, I welcome you to Stellenbosch on this occasion.

Science communication has been on the agenda of the South African government since the 1996 White Paper on Science and Technology and the declaration of 1998 as the 'Year of Science and Technology'. Since then, its science communication and engagement programmes largely followed international developments in science policy. However, it is only since 2015 that the Department of Science and Technology established two research chairs – one each at Stellenbosch and Rhodes – to contribute to research capacity building in the field. This enables us to generate an evidence base for effective science engagement in the local context, as well as to develop our own brand of science communication responding to the country's specific challenges: culturally, educationally and economically.

Thus, our attempt was to assemble as many members of the South African science communication community as possible to obtain an overview of current activities pertaining to science engagement, its achievements as well as its problems, and to provide an opportunity for meeting, exchanging ideas, and establishing contacts for future cooperation.

We also invited a number of guests from abroad with the same objectives in mind, some being partners in ongoing cooperative research projects, some hopefully to become collaborators in future. I thank you for joining our invitation and wish us all an intellectually stimulating, academically productive and socially enjoyable conference.

Peter Weingart
South African Research Chair in Science Communication
Centre for Research on Evaluation, Science and Technology (CREST)
Stellenbosch University

SciCOM 100 Conference 2018

Science communication and democratic South Africa: prospects and challenges

Conference day one: Monday, 5 November 2018	
08:00 – 09:00	Registration and coffee/tea
Session 1: 09:00 – 11:00 (Monday, 5 November 2018)	
Science communication and democracy	
Chair: Johann Mouton, Stellenbosch University	
09:00 – 09:15	Welcome Peter Weingart, Stellenbosch University
09:15 – 09:30	Official conference opening Eugene Cloete, Stellenbosch University
09:30 – 10:00	The status of public science engagement in SA: a practical and policy perspective Beverley Damonse, National Research Foundation
10:00 – 10:30	Science communication and democracy in Africa: challenges and prospects for transformation in an age of globalisation, populism and structural inequalities Elisabeth Rasekoala, African Gong
10:30 – 11:00	Coffee & tea
Session 2: 11:00 – 13:00 (Monday, 5 November 2018)	
Responsible research and innovation (RRI) and science communication	
Chair: Nelius Boshoff, Stellenbosch University	
11:00 – 11:30	Responsible innovation in South Africa: meeting the needs of society Anne Dijkstra, University of Twente
11:30 – 12:00	Beyond science awareness: embedding responsible research and innovation (RRI) in the research agenda Penny Haworth, South African Institute for Aquatic Biodiversity
12:00 – 12:30	Towards co-creation of technology and innovation with communities: models and benefits in higher education Janice Limson, Rhodes University
12:30 – 13:00	Limited technology foresight and ambivalent moral assessment: options left for RRI Martin Carrier, University of Bielefeld
13:00 – 13:45	Lunch

Session 3: 13:45 – 15:45 (Monday, 5 November 2018)

Science, scientists and social media

Chair: Peter Weingart, Stellenbosch University

13:45 – 14:10	Open science and the online communications of the anti-vaccination movement François van Schalkwyk, Stellenbosch University
14:10 – 14:35	The role of scientists in utilising social media to counter alternative facts in science George Claassen, Stellenbosch University
14:35 – 15:00	Square Kilometre Array's (MeerKAT) struggles with anti-science advocacy groups Anton Binneman, Square Kilometre Array South Africa
15:00 – 15:25	How scientists can use social media to democratise science in South Africa Zamuxolo Matiwana, South African Agency for Science and Technology Advancement
15:25 – 15:45	How media technologies have changed science communication in a university setting Shirona Patel, University of the Witwatersrand

15:45 – 16:15 Coffee and tea break

Session 4: 16:15 – 17:30 (Monday, 5 November 2018)

Science communication and language(s)

Chair: Derek Fish, Unizulu Science Centre

16:15 – 16:40	The challenge of language in communicating science in South Africa: science centres Saalih Allie, University of Cape Town
16:40 – 17:05	Enhancing science communication starts at school: Improving science teacher resources through the use of plain language Lauren Fouché, University of Pretoria
17:05 – 17:30	Telling science stories in indigenous languages Michael Ellis, South African Agency for Science and Technology Advancement

19:00 – 21:30: BBQ at Middelvlei (<http://www.middelvlei.co.za/>)

Science theatre: When science meets society in South Africa

Conference day two: Tuesday, 6 November 2018

08:30 – 09:00 Coffee & tea

Session 5: 09:00 – 10:45 (Tuesday, 6 November 2018)

Science communication, politics & policymakers

Chair: Lars Guenther, University of Jena & Stellenbosch University

09:00 – 09:30 **Communicating science in polarised environments**
Dietram Scheufele, University of Wisconsin-Madison09:30 – 10:00 ***Homo naledi* and humanity vs. *dinaledi* and the SKA: communication or persuasion?**
Ian McKay and Anthony Lelliott (co-author), University of the Witwatersrand10:00 – 10:25 **The challenges of communicating science effectively in fisheries management**
Doug Butterworth, University of Cape Town10:25 – 10:45 **The challenge of reaching policymakers in democratic South Africa**
Paul Kennedy, ScienceLink

10:45 – 11:15 Coffee/tea

Session 6: 11:15 – 12:45 (Tuesday, 6 November 2018)

The cultural authority of science

Chair: Beverley Damonse, National Research Foundation

11:15 – 11:45 **What do we mean by the cultural authority of science; why is it important and how is it measured?**
Martin Bauer, London School of Economics11:45 – 12:15 **From Sangoma to Jesus Christ to scientists: are African religious practices facilitators and/or inhibitors to the uptake of scientific ideas**
Bankole Falade, Stellenbosch University12:15– 12:45 **Community conversations as space for social change within church groups**
Mercy Nhamo-Murire, Rhodes University

12:45 – 13:30 Lunch

Session 7: 13:30 – 15:00 (Tuesday, 6 November 2018)	
Reflective science communication practice 1	
Chair: Lauren Wildschut, Stellenbosch University	
13:30 – 14:00	Indicators for engagement in open science Ismael Rafols, Ingenio (CSIC-UPV), Universitat Politècnica de València
14:00 – 14:20	Monitoring and evaluation of a biosafety communication and engagement project: did we make an impact? Liesel Gouws, Biosafety South Africa
14:20 – 14:40	Public communication of science: a review of Maropeng’s contribution Lindsay Marshall, Maropeng Visitor Centre
14:40 – 15:00	A meta-analysis of science communication methods in science engagement Lindie Muller, South African Agency for Science and Technology Advancement

15:00 – 15:30	Coffee/tea
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Parallel session 8			
Session 8A: 15:30 – 16:30 (Tuesday, 6 November 2018) [Room 4043] Reflective science communication practice 2 Chair: Lauren Wildschut, Stellenbosch University		Session 8B: 15:30 – 16:45 (Tuesday, 6 November 2018) [Room 4045] Sharing science through stories, music and dance Chair: Marina Joubert, Stellenbosch University	
15:30 – 15:50	Why impact evaluation matters in science communication Eric Jensen, University of Warwick	15:30 – 15:55	Science: a story worth telling Mike Bruton, Imagineering, Cape Town
15:50 – 16:30	Evaluating a science communication MOOC (massive open online course) Anusuya Chinsamy-Turan, University of Cape Town & Eric Jensen	15:55 – 16:20	Collaborative communication of science: empowerment through research, rhythm and rhyme Hilary Kromberg, Jive Media Africa
		16:20 – 16:45	‘The ‘All from One’ campaign and the ‘Walking Tall’ education theatre project Andrea Leenen & Rob Blumenschine, PAST (Palaeontological Scientific Trust)

Conference day three: Wednesday, 7 November 2018

08:30 – 09:00 Coffee & tea

Session 9: 09:00 – 10:45 (Wednesday, 7 November 2018)

Scientists and publics for science in South Africa

Chair: Heidi Prozesky, CREST, Stellenbosch University

09:00 – 09:30 **Public trust in science: A re-interpretation and systematization of representative surveys**

Lars Guenther, University of Jena & Stellenbosch University

09:30 – 09:55 **Public perceptions of science in South Africa: evidence and gaps**

Michael Gastrow, Human Sciences Research Council

09:55 – 10:20 **Country-specific factors that compel South African scientists to engage with society**

Marina Joubert, Stellenbosch University

10:20 – 10:45 **Early career researchers learning to engage with the public(s): a productive symbiosis**

Mathilde van der Merwe, University of Cape Town

10:45 – 11:15 Coffee & tea

Session 10: 11:15 – 12:45 (Wednesday, 7 November 2018)

Environmental communication

Chair: Shirona Patel, University of the Witwatersrand

11:15 – 11:45 **Beyond fear and panic: The role of communities in biodiversity conservation**

Rendani Mulaudzi, Cape Peninsula University of Technology

11:45 – 12:15 **Small holder farmers' perceptions on climate variability in relation to climatological evidence in the Molemole Municipality in the Limpopo Province**

Maropene Rapholo, University of Limpopo

12:15 – 12:45 **Perceptions of the environment and environmental issues in South Africa's Western Cape Province (A Stellenbosch case study)**

Corlia Meyer, Stellenbosch University

12:45 – 13:30 Lunch

Session 11: 13:30 – 15:00 (Wednesday, 7 November 2018)	
Science communication, communities and teaching	
Chair: Leslie van Rooi, Stellenbosch University	
13:30 – 14:00	Towards more effective science communication for different groups in SA Derek Fish, Unizulu Science Centre
14:00 – 14:30	Community involvement in developing an integrated and inclusive science communication strategy: Results from an adherence communication study in Mpumalanga and Ekurhuleni Konosoang Sobane, Human Sciences Research Council
14:30 – 15:00	Where is the intellectual home of science communication? A critique of relations of power in science communication according to perspectives of academics at the University of Limpopo Isaac Riba, University of Limpopo

15:00 – 15:30	Coffee & tea
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Session 12: 15:30 – 16:45 (Wednesday, 7 November 2018)	
Science shops as an interface between science and its publics	
Chair: Isaac Ramovha, Department of Science and Technology	
15:30 – 15:55	Science shops for interactive science communication – experiences in Europe Henk Mulder, University of Groningen
15:55 – 16:15	Science shops in South Africa – the experience of the UCT Knowledge Co-Op Barbara Schmid, University of Cape Town
16:15 – 16:45	Final reflections and closing by Peter Weingart

Speakers' abstracts and bios / ...

Professor Saalih Allie

University of Cape Town

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**The challenge of language in communicating science in South Africa: Science Centres**

(Session 4: Monday, 5 November 2018)

Co-authors: Derek Fish, Unizulu Science Centre; Nancy Pelaez, Purdue University and Trevor Anderson, University of KwaZulu-Natal

Abstract

Science centres are often perceived as one of the more effective outreach initiatives for schools. However, there are many issues regarding the actual impact of visits to such centres. One of these issues is that of the language encountered by learners during communication of concepts and explanations. The language of science communication and instruction has of course long been an important and controversial topic in South Africa. The present study investigates the role of language in the context of a science show presented at Unizulu Science Centre. The show uses music and musical instruments to teach students about the physics of sound. In previous presentations the authors reported on how much students learnt from such a show that was given in English, highlighting the gain difference between students coming from rural schools (lower gain) and those from urban or township schools (higher gain). While there are many reasons that could be attributed to the difference, the possible role of language was further investigated. To this end the show was presented to a rural group in their mother tongue (isiZulu), while the survey instrument remained in English. Significant gains in student confidence and learning were measured, compared with that previously achieved by similar rural groups. While further detailed studies need to be carried out, the results strongly hint that mother-tongue communication needs to be a prime consideration in schools outreach initiatives if the time, money and effort put into them are to have effective outcomes. While performed in the context of a science show, this study nevertheless has implications for all aspects that relate to typical science centre visits. This includes exhibits, signage, and workshops. The present work is consistent with international studies that show how language in education affects pupil performance negatively if this aspect is not taken into account.

Bio

Saalih Allie is associate professor (Department of Physics and the Academic Development Programme) at the University of Cape Town, where he earned a PhD in experimental nuclear physics. He joined the Academic Development Programme (ADP) in science in 1986 as the lecturer responsible for designing and teaching special courses in physics for students from educationally disadvantaged backgrounds. From 1991 to 2016, he was the head of the Science ADP unit. In 2005, he constructed and directed a postgraduate bridging programme as the equity component of the National Astrophysics and Space Science Programme (NASSP). As of this year, he is co-director of NASSP. His research interests are located within the area of physics education, and more recently astronomy education. He is particularly interested in student engagement with issues around experimentation, the role of language and context in understanding physics concepts and aspects of visualisation in particular as they pertain to astronomy.

Professor Martin Bauer

London School of Economics

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**What do we mean by the cultural authority of science; why is it important and how is it measured?**

(Session 6: Tuesday, 6 November 2018)

Abstract

In this paper, I will look at the question of science not from the point of view of epistemology or philosophy, but through its external relations with the public. The autonomy and authority of science seemed challenged in many places around the world. The sciences get embroiled in controversy (fraud, genetics, environmental crisis), are subject to external assessment (ranking and impact assessment) and increasingly seek public attention (medialisation) to compensate the loss of position in society. But, is the authority of science really in decline? The answer to this question is a matter of empirical evidence. I will present evidence, mainly from Europe and North America, from surveys of public perceptions of science and trust and confidence in science. Over the past 30 years, evidence has accumulated which allows us to compare trends in public confidence in science. We will examine some of this evidence in the light of two models: the lighthouse (LH) and the Bungee Jump (BJ) model of scientific authority. The cultural authority of science is a key issue of modern societies, as only a science with authority can 'speak truth to power' and present an authoritative voice in public debates on pressing issues such as climate change, nuclear power, artificial intelligence and genetic engineering. However, this cultural authority of science ultimately rests in public perceptions, and in the case of science it entails also a historical paradox: an anti-authoritarian tradition seeking social authority. The absence of such an authority means tyranny, or on scientific matters, technocracy, i.e. the rule of experts at the exclusion of the people. Historically, the technocratic temptation of elites is an historical constant, public acceptance of this fact is the variable. For this reason we need to monitor public perception and engage the public in science.

Post-conference workshop: Professor Martin Bauer will co-present a session on surveys of public understanding of science at the post-conference workshop on Thursday, 8 November 2018.

Bio

Martin W Bauer read psychology and economic history in Bern and Zurich; he is professor of social psychology and research methodology at the London School of Economics and Political Science (LSE) and director of the MSc programme Social & Public Communication. A member of 'acatech' (German Academy of Technical Sciences) and a former editor of *Public Understanding of Science* (2009–2016), he investigates social representations, public attitudes and 'common sense', including conspiratorial mentality, in a comparative perspective and in relation to techno-scientific developments and debates. Recent books include: *Atom, Bytes & Genes – Public Resistance and Techno-Scientific Responses* (NY, Routledge, 2015); and *The Cultural Authority of Science – Comparing across Europe, India, China, the Americas and Africa* (with Pansegrau & Shukla; London, Routledge, 2019).

Dr Anton Binneman

Square Kilometre Array, South Africa

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**Square Kilometre Array's (MeerKAT) struggles with anti-science advocacy groups**

(Session 3: Monday, 5 November 2018)

Abstract

South Africa and Australia have been selected to host the Square Kilometre Array Project (SKA). Currently, South Africa is completing MeerKAT, a 64-dish array that will be integrated into SKA phase one. Once complete, phase one will consist of 197 dishes that will enable revolutionary astronomical observations. As with most advances there are likely to be societal impact. Within the local communities in South Africa, there is a definitive socio-economic impact evident that could be perceived as both positive and negative. The documented negative impact is centred on communication, specifically radio communication near the core and along the spiral arms; as well as the estimated loss of 130 000 hectares of agricultural land. On the other hand, positive impact includes direct investment by government and other institutions into affected towns, development of local businesses and educational institutions, and various other indirect benefits. Since commencement, the project has spent more than R250 000 000 in the Karoo area.

The focus of this paper will be on research related to public perception of SKA and how it was influenced by social media campaigns driven by groups opposed to the SKA project. It will briefly highlight South African media content related to the SKA project, which will include a succinct analysis of associated social media. This will establish a base for a more in-depth analysis of the qualitative content of two particular Facebook pages that are administrated by advocacy groups that are explicitly opposed to the SKA project. This analysis will move through three phases namely:

1. A social network analysis of all 'Save the Karoo's' Facebook content.
2. In-depth content analysis, as well as a frequency analysis to determine main themes.
3. A critical discourse analysis

The paper will then conclude with a conceptual communications strategy that could address misconceptions that are propagated by anti-science alliance groups, using SKA and the development of MeerKAT as an example.

Bio

Anton Binneman is the stakeholder manager for NRF|SARAO and SKA SA. He is responsible for managing relationships with communities surrounding the SKA, local, regional and provincial government. He is also responsible for other stakeholder groups like researchers, SANParks, AGRI SA and the San communities, as well as for media monitoring and media analytics. He obtained his PhD from the University of Pretoria where he also taught research methodology and epistemology.

Professor Rob Blumenschine

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**Public communication of the science of our shared origins: PAST's 'All from One' campaign and exhibition and the 'Walking Tall' educational theatre project**

(Session 8B: Tuesday, 6 November 2018)

Co-presenter: Andrea Leenen, Palaeontological Scientific Trust

Abstract

The sciences related to the origins and evolution of life and humankind (origin sciences) can be a potent tool for promoting African dignity, social cohesion and non-racism, and the conservation of natural environments and biodiversity. However, most public communication of the origin sciences emphasises new fossil discoveries (which are unpredictable in their timing and fleeting in their impact on non-scientists), their discoverers (where science celebrity can overshadow scientific relevance), or exhibitions limited to major discoveries and a chronicle of the history of life.

PAST, the Palaeontological Scientific Trust, is a South African public benefit organisation that since 1994 has raised funds to support research, postgraduate bursaries and technical capacity in the African origin sciences, spanning the whole of the palaeontological record and the African continent. PAST has also become increasingly dedicated to secondary school education and public understanding of origin sciences, the former with the Walking Tall Educational Theatre Project since 2002, and the latter with the All from One campaign launched in 2015. Walking Tall has given origin sciences workshops to 1.3 million students and teachers, featuring a physical theatre production depicting the evolution of life and humankind followed by a science session. Walking Tall originally focused on filling gaps in the often inadequate teaching of evolution in South African secondary schools. Increasingly, Walking Tall has also become a platform for highlighting the shared African origins of humankind and the shared origins of all living things, two bodies of knowledge that underpin African dignity, anti-discrimination, and pro-conservation themes of the All from One campaign. In addition to Walking Tall, the campaign features exhibitions that have toured South Africa and have been displayed at the United Nations in Geneva, and a new website that is intended to give the campaign a global reach. PAST has a monitoring and evaluation system for Walking Tall and is developing additional ways to measure the public impact of this educational programme and other elements of the All from One campaign.

Bio

Robert Blumenschine has served as chief scientist of PAST, the Palaeontological Scientific Trust, since 2010. In addition, he is an emeritus professor at Rutgers University, where he served on the faculty of the Department of Anthropology for 27 years. He holds a PhD in anthropology from the University of California, Berkeley. He has published extensively on the behaviour and ecology of human ancestors, and has conducted archaeological, palaeontological and wildlife research in Africa, principally in Tanzania as co-leader of the longest-running human origins research project at Olduvai Gorge in Tanzania since 1987.

Professor Mike Bruton

Imagineering

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**Science: a story worth telling**

(Session 8B: Tuesday, 6 November 2018)

Abstract

After a career as a research scientist and then a science centre developer and manager, I have spent the first five years of my retirement writing popular science books. This genre of books is well-developed in the northern hemisphere, but relatively undeveloped in South Africa (and Africa). This is a pity, as well-written and well-illustrated books have the potential to play a major role in making science accessible (and technology understandable) to a broad public. My method involves educating the public about the scientific method, and emphasising that science is always 'work in progress' and that it is healthy to constantly question the status quo. This is especially important at a time when the value of science is being questioned, and the volume of scientific discoveries is unprecedented, yet science and technology play a more important role in our lives than ever before. I will share the lessons that I have learned from writing popular science books: what works and what doesn't, and why it is important to complement the publication of a book with talks, workshops, debates, radio and television interviews, and discussions on the book's topic. I will emphasise the importance of relating first-hand experiences by the author to the explanation of scientific phenomena and technological advances, as well as the importance of interacting with scientists and technologists from a wide range of cultures and educational backgrounds. I will also discuss the successful interactive children's workshops, entitled 'Animal Storytelling' that I have developed and performed in South Africa and the Middle East, as well as my concept of the 'information value chain' whereby we need to advance our public awareness programmes down a continuum from: Information → Knowledge → Wisdom → Changing Mind-sets → Changing Behaviours → Influencing others to change their mind-sets and behaviours.

Bio

Mike Bruton received his PhD in zoology from Rhodes University. After a postdoctoral year at the Natural History Museum in London, he was appointed as head of the Department of Ichthyology & Fisheries Science at Rhodes University. He was later appointed as the director of the JLB Smith Institute of Ichthyology (now SAIAB), where he expanded the institute's research and public awareness programmes. He then moved to Cape Town as head of education at the Two Oceans Aquarium. Thereafter he launched the MTN ScienCentre, from concept to full operation; its success was assured by it receiving over one million visitors in the first ten years. He then joined MTE Studios and helped to develop interactive science centres and travelling exhibitions in South Africa, Dubai, Bahrain and Saudi Arabia. Between 2000 and 2014 he became very involved in the international science centre scene, and was the chair of the international programme committee of the 6th Science Centre World Congress held in Cape Town in 2011. In 2015 he attempted to retire in Cape Town, but now does consultancy work on the design and development of science centres and interactive exhibitions. He has also been very active in writing popular science books.

Professor Doug Butterworth

Marine Resource Assessment and Management Group (MARAM) and University of Cape Town

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**The challenges of communicating science effectively in fisheries management**

(Session 5: Tuesday, 6 November 2018)

Abstract

Fisheries management presents special challenges in the communication of science. At base are some highly complex mathematical-statistical analyses which are used to estimate sustainable levels of catch in what is an inexact science. Ultimately these analyses and their results have to be translated into a form intelligible to the politicians who make the final decisions under a variety of pressures from other stakeholders. This last group principally includes the fishing industry and environmental non-governmental organisations (e.g. Greenpeace, WWF), but can also extend to economists, social scientists, lawyers, journalists and civil service bureaucrats (and particularly in a South African context those outside the fishing industry who consider that they should be inside!). These different groups have different abilities to understand the science that needs to underlie rational choices and decisions, and require that the science be packaged in ways that allow them to follow the essentials without being swamped in what to them is an unnecessary level of detail. Scientists frequently struggle to achieve such communication effectively, as it often requires the diametrical opposite of the approach which they would use with other scientists.

The presentation will summarise fisheries management advice structures in South Africa and internationally, and how well these are addressing this problem. It will focus particularly on a recent initiative to improve the situation in the five regional fishery management organisations responsible for the control worldwide of tuna fishing in international waters, where the difficulties which scientists are experiencing in communicating effectively is seen as a major stumbling block to improving the basis that these organisations are using for their decision making.

Bio

Emeritus professor Doug Butterworth, who is a South African based in the Department of Mathematics and Applied Mathematics at the University of Cape Town, was originally an elementary particle physicist, obtaining his PhD in that field from University College, University of London in 1977. He moved on from there to specialise in mathematical modelling approaches to the assessment of and development of management procedures for renewable marine resources. This has included making contributions to and participating in the scientific committees responsible for providing advice on appropriate levels of catch for all South Africa's major fisheries, and internationally for whales (in the IWC), Antarctic krill (at CCAMLR), and tuna where he has had a lengthy involvement in bluefin tuna analyses at ICCAT and CCSBT. His participation in over 400 international fishery-related meetings includes involvement in FAO consultations on CITES and eco-labelling, and he has been invited to provide advice on fisheries matters by government departments in twelve and by fishing industry associations in ten countries. He was recently awarded the Order of Mapungubwe – Silver (the country's highest award) by the South African President for his scientific contributions fisheries management in South Africa and internationally.

Professor Martin Carrier

Bielefeld University

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**Limited technology foresight and options left for RRI**

(Session 2: Monday, 5 November 2018)

Abstract

Responsible research and innovation (RRI) features the dialogue of science “with society” and research performed “for society” i.e., for the benefit of the people. I focus on this latter, outcome-oriented notion of RRI and address problems of making demands of social and moral responsibility more tangible. Against the background of limited technology foresight, I explore the options left for RRI. First, RRI should contribute to maintaining a wide range of approaches and to avoiding foreclosing opportunities prematurely. Second, judgments about RRI should draw on zones of convergence among the variety of research approaches pursued. Third, decisions about implementing a technology should be revisable. Fourth, the more specific inclusion of demands from society should be reserved to technology development. Fifth, in many respects, the social compatibility of a new technology is due rather to the social context than the inherent features of the product. Favourable circumstances are transparency, representation of all relevant parties, and procedural fairness. As a result, promising pathways of research and obstacles to introducing a technology can be identified without detailed knowledge of yet unknown technological features and without relying on unambiguous moral commitments.

Bio

Martin Carrier is professor of philosophy at Bielefeld University and director of the Institute for Interdisciplinary Studies of Science (I2SoS). He earned his PhD at the University of Münster, spent his postdoctoral period at the University of Konstanz, and became professor of philosophy at the University of Heidelberg. Since 1998, Carrier works in Bielefeld. His chief area of research is the philosophy of science, in particular, historical changes in science and scientific method, theory-ladenness and empirical testability, and presently the relationship between science and values and science operating at the interface with society. In this latter field he addresses methodological changes imposed on science by the pressure of practice. Carrier is a member of the German Academy of Science Leopoldina, the Berlin-Brandenburg Academy of Sciences, the Academy for Science and Literature Mainz, the “Academia Europaea,” and the “European Academy of Sciences.” He was awarded the Leibniz Prize of the German Research Association (DFG) for 2008, the Blaise-Pascal-Medal for Social Sciences and Humanities for 2015 (conferred by the European Academy of Sciences), and the Canadian Diefenbaker Award for 2016.

Professor Anusuya Chinsamy-Turan

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**Evaluating the effectiveness of a science communication MOOC**

(Session 8A: Tuesday, 6 November 2018)

Co-presenter: Professor Eric Jensen, Warwick University

Co-authors: Andrew Deacon, UCT and Janet Small, Warwick University

Abstract

With a longstanding commitment to public communication of science, the lead author became interested in the potential of massive open online courses (MOOCs) to allow greater access to knowledge. Together with colleagues at UCT, she developed a MOOC called 'Extinctions: Past and Present'. Launched and presented three times in 2017, the course was extremely well received and attracted over 6 500 enrolments from 130 countries. It is well recognised that improving communication between scientists and the public calls for improved evaluation to understand what is working and why, not simply more science promotion and engagement initiatives for their own sake. Measuring the impact of science communication initiatives requires a careful process of developing clear objectives and a linked evaluation design focused on course-relevant outcomes to inform practice. In contrast, the standard evaluations of MOOCs are driven by generic questions about audience characteristics, motivation to learn online and the online experience. Dissatisfied with the limitations of the standard approach, we developed a repeated measures evaluation (pre-, intermediate and post-experience surveys) to gauge the impact of the science engagement experience in the MOOC, as well as whether course-relevant attitudes had changed through the learning experience. Thus, we were interested in understanding the impact of the science communication, that is, 'what knowledge do people come with, and what do they take away after the learning engagement?'. The evaluation assessed attitudes, interests and awareness relating to the topic of extinctions, in the past and in the future. We will present our evaluation approach and lessons learned along the way.

Bio

Anusuya Chinsamy-Turan is a global expert on the microscopic structure of the bones of extinct and extant vertebrates. Her work has been recognised by several highly acclaimed awards and she has published extensively in international scientific journals and the popular press. She chairs the advisory board of Scifest Africa and serves on the advisory board of the Cape Town Science Centre. In addition, she is the chair of the Romer-Simpson Prize Committee of the US-based Society of Vertebrate Palaeontology, and serves as a board member for the Jurassic Foundation (US). She is also a Fellow of the Royal Society of South Africa and The Word Academy of Sciences. Her academic book, *The Microstructure of Dinosaur Bone - Deciphering Biology Through Fine Scale Techniques* was published by Johns Hopkins University Press in 2005 and her popular book for children entitled *Famous Dinosaurs of Africa* was published by Struik, South Africa, in 2008. Her latest academic book is entitled *The Forerunners of Mammals: Radiation. Histology. Biology* (2012, Indiana University Press, USA), and her recent popular book is *Fossils for Africa* (2014, Cambridge University Press).

Professor George Claassen

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**The role of scientists in utilising social media to counter alternative facts in science**

(Session 3: Monday, 5 November 2018)

Abstract

Quackery, the spread of pseudoscience and alternative “facts” in the health field is a common phenomenon. Furthermore, the public understanding of science is vital, in any society, to counter fake news and pseudoscientific claims and quackery. Yet, the way the media are used by consumers, has changed drastically over the past decade. “Our news ecosystem has changed more dramatically in the past five years than perhaps at any time in the past five hundred. Social media hasn’t just swallowed journalism, it has swallowed everything,” as Professor Emily Bell of Columbia University points out. This paper will analyse why and how scientists should utilise social media to address the problem of fake science findings, pseudoscientific claims and quackery, linking up with and confirming five reasons why scientists should communicate with the public, by now also expanding and venturing into social media platforms. Studies have shown that it is indeed beneficial for scientists and scientific institutions to have an online social media presence and that Twitter can foster better public engagement with science. Researchers point out that scientists are increasingly using Twitter as a tool for communicating science; that Twitter can promote scholarly discussion, disseminate research rapidly, and extend and diversify the scope of audiences reached. However, scientists also caution that if Twitter does not accurately convey science due to the inherent brevity of this media, misinformation could cascade quickly through social media. This paper will also look at the challenges of accurately reporting science on Twitter in 280 characters and why scientists should not fear social media platforms to communicate.

Bio

George Claassen is a former head of the Department of Journalism at Stellenbosch University where he still teaches media ethics and science communication to postgraduate students. He serves on the board of the international Organization of Newsombudsmen and Standards Editors (ONO), was ombudsman for *Die Burger* (Afrikaans language daily newspaper in the Western Cape) for eight years and since 2008 has been the ombudsman for Media24’s community media. In 2018, he became public editor (ombudsman) at News24. Claassen is an award-winning science journalist and director of the Centre for Science and Technology Mass Communication (CENSCOM) at Stellenbosch University. He has more than 40 years’ experience as a journalist and journalism lecturer, has published various books on media ethics, science and technology issues and health quackery, and organizes the bi-annual ‘Science Meets the Media’ event in Stellenbosch. Claassen is chair of the South African National Editors’ Forum’s science journalism training committee. In 2017, while based at the Center for Journalism Ethics at the University of Wisconsin in the USA, he researched the effects of misleading advertising in the health trade and the role the media play in sound ethical reporting with regard to health claims.

Dr Rodrigo Costas

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**Social media metrics in practice**

Presentation at post-conference workshop on Thursday, 8 November 2018.

Abstract

The growing availability of online applications based on the Web 2.0 has opened the possibility to study the interactions between broad audiences and research outputs. The set of these new metrics is what is commonly known as 'altmetrics' or social media metrics. Social media metrics have gained great importance in the fields of science communication and scientific evaluation. They are increasingly being considered as a relevant source to study other types of impact related to scientific activity as well as means to study new forms of scientific communication and dissemination. This workshop will present a global vision of the main tools, theoretical frameworks and analytical possibilities that have been developed in the most recent years. The workshop is expected to providing practical recommendations for the development of altmetric studies related with scientific communication.

Bio

Rodrigo Costas is a senior researcher at the Centre for Science and Technology Studies (CWTS) at Leiden University (the Netherlands). Rodrigo is also an extraordinary associate professor at the Centre for Research on Evaluation, Science and Technology (CREST) at Stellenbosch University. He holds a PhD in library and information science from the CSIC in Spain. His areas of expertise include the fields of information science, scientometrics, and social media metrics. At CWTS, he leads the research line in 'altmetrics', focused on developing new theoretical and analytical approaches to study the interactions between social media and science. Some of his other topics of research include the development of advanced scientometric studies of individual scholars and the study of funding acknowledgments as a new source of scientometric data. In addition to his research activities, Rodrigo is also involved in various European and contract research projects.

Dr Beverley Damonse

National Research Foundation

Email: beverley.damonse@nrf.ac.za**The status of public science engagement in South Africa: a practical and policy perspective**

(Session 1: Monday, 5 November 2018)

Abstract

Life in the 21st century is increasingly dominated by complex issues that require openness, dialogue, trust and confidence in science itself, our science institutions, scientists and policymakers, and hence public engagement with science is a critical component in the development of science and innovation within a knowledge economy. In the South African context, the early beginnings of the new science policy era (post 1994) have been cognisant of the need for public engagement with science, and the science engagement landscape has evolved significantly over the past 15 – 20 years. This presentation will look at the evolution of the science and society landscape within the South African context, including considerations of policy implementation and practice, as well as developing capacities of individuals and institutions, given that the need for deeper engagement is essential for the future of both science and society.

Bio

Beverley Damonse is the group executive for science engagement and corporate relations of the National Research Foundation (NRF) of South Africa, driving policy and strategy development and implementation in the advancement of research and technology, public communication and engagement with science, science education as well as corporate communications and stakeholder engagement. She has more than a decade of executive leadership experience, having been the previous executive director of the South African Agency for Science and Technology Advancement (SAASTA) from 2003–2012. She has well established international networks and has represented the NRF in various international portfolios and platforms. She is a member of The International Women's Forum of South Africa (IWFSFA), the NRF board and the advisory board of the South African Young Academy of Science (SAYAS). She also served as an immediate past member of the Technology and Human Resources for Industry Programme (THRIP) advisory board, as well as boards of the Cape Town Science Centre and the Sci-Enza Science Centre of the University of Pretoria. She obtained a BSc (microbiology and plant pathology), B.Ed and MEd from the then University of Natal (now University of KwaZulu-Natal) and a doctorate degree (education policy and management) from the University of Pretoria.

Dr Anne Dijkstra

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**Responsible innovation in South Africa: meeting the needs of society**

(Session 2: Monday, 5 November 2018)

Abstract

Science showing responsibility towards society by meeting the needs of society is key in current European policy making. Under the label of Responsible Research and Innovation (RRI), EU projects have been funded to study as well as to stimulate practices of responsible science-society relationships. As part of the EU-funded NUCLEUS project a broader cultural, international and enriched perspective of RRI was aimed for, and, amongst others, a comparative case study was conducted for the case of South Africa. A multimethod approach was applied and both a literature study as well as semi-structured interviews were conducted. In this paper, findings will be presented which provide more insight in what contributes to concepts, policies and practices of responsible research and innovation in South Africa. Notable examples will be given, as well as barriers and challenges will be highlighted. Findings will be discussed within the current – and mainly European - academic discourse on responsible science-society relationships. First, findings show that at the conceptual level, the notion of RRI as such is quite new in the South African context, however, the ideas behind this concept are not. Many efforts under a different conceptual framing can be seen as showing responsibility towards society. Second, policies, e.g. for science education, are found to be responsive to the long-term needs of society but encounter challenges regarding budget and tackling equality and equal access to universities. Finally, at the institutional as well as individual level large efforts are dedicated to science education and communication. Still, reaching out to particular groups, for example rural communities, is challenging. Stimulating and continuing support for researchers is wanted. Building sustainable relationships, also with European partners, may help.

Bio

Anne Dijkstra is an assistant professor in science communication at the University of Twente. Her dissertation 'Of publics and science: How publics engage with biotechnology and genomics' dealt with the public debate about biotechnology. Prior to her academic career she was a science communication advisor. She studies the changing science-society relationship from a communication perspective. Her research focuses on understanding this relationship and, in particular, the roles of the public as well as, for example, those of researchers. Studies often relate to emerging technologies such as nanotechnology, biotechnology or human enhancement. She is involved in several European-funded projects, for example NUCLEUS and GoNano. Dr Dijkstra co-edited a Dutch handbook on science communication and contributed to several chapters. She was a visiting researcher at Newcastle University and a visitor at the Institute of Advanced Study at Durham University in the UK. She teaches courses related to the science-society relationship, for example, about science communication and journalism, and responsible innovation. As a volunteer, she helps organising monthly public meetings for the Science Café Deventer.

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**Telling science stories in indigenous languages**

(Session 4: Monday, 5 November 2018)

Abstract

There are over 7 000 living languages in the world and of these languages, 90% are spoken by fewer than 100 000 people. In South Africa alone, there are eleven nationally recognised official languages and many more demographically represented languages. The language that we use in our dialogue about science can assist in creating cultural relevance and a shared vision of scientific endeavours. Science is however, often communicated in English, and this can support the idea that a dominant culture is overriding the value associated with indigenous knowledge, culture and ways of knowing. It may be necessary to place more emphasis on communicating science in various indigenous languages in South Africa in order to create a greater sense of dignity and value of our diverse cultures. The former statesman and international peacemaker, Nelson Mandela, said that “If you talk to a man in a language he understands, that goes to his head. If you talk to him in his language, that goes to his heart.” In an era of increasing scientific complexities, of the ongoing emergence of false and inaccurate news, of political instability and significant global and societal changes associated with a new industrial revolution, it may become ever more important to ensure that cultural diversity is intertwined in the dialogue between science and society.

Bio

Michael Ellis serves as the science communication manager at the South African Agency for Science and Technology Advancement (SAASTA), a business unit of the National Research Foundation. He leads a dynamic team responsible for the development of science communication strategy and the coordination of various science communication programmes in South Africa. He is passionate about communicating science and has over a decade of experience in implementing science engagement and communication initiatives. He has served on the management teams of the Cape Town Science Centre and Sci-Bono Discovery Centre in Johannesburg. Michael has experience in human capital development through his involvement in the national network of science centres and more recently, inspiring and training students and researchers in science communication skills. He is responsible for driving various national programmes through SAASTA, including a youth science journalism internship programme, priority area public engagement programmes, the South African Science Lens and FameLab SA competitions and a national science debating initiative, amongst others. Michael has an MSc (entomology), BSc Hons, a BSecEd (Sci) from the University of Pretoria and is currently completing a strategic management development programme through the Stellenbosch University Business School.

Dr Bankole Falade

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**From Sangoma to Jesus Christ to scientists: are African religious practices facilitators and/or inhibitors to the uptake of scientific ideas?**

(Session 6: Tuesday, 6 November 2018)

Abstract

African, Western and Eastern religious beliefs and practices and the scientific method continue to coexist on the continent and all appear to be engaged in a struggle for “superiority” in the hearts and minds of the public. But is this a struggle for superiority? Should this relationship be seen from the perspective of cognitive dissonance, where a superior reasoning (science or religion) should displace an inferior one? Alternatively, are we in a state of cognitive polyphasia where both forms coexist in parallel or complementary forms? My presentation takes a journey back in time to the present day, looking at case studies from West and South Africa, as religion and science remain part of the discourse about health and living on the continent. Research has shown that Africans believe that sacrifices to ancestors or spirits can protect them from harm. In addition, roughly a quarter or more of the population in 11 countries say they believe in the protective power of Sangoma (juju, charms or amulets), shrines and other sacred objects. Are these practices facilitators or inhibitors to the spread of science? Case studies include the perceptions of the oral polio vaccine in northern Nigeria, the tetanus toxoid vaccine in Cameroun, the Ebola virus in West Africa and a recent study of rural communities in South Africa on the conflict between religion and science.

Post-conference workshop: Dr Bankole Falade will co-present a session on surveys of public understanding of science at the post-conference workshop on Thursday, 8 November 2018.

Bio

Bankole Falade is a social psychologist with teaching and research interests in science and health communication; science, religion and public life; media and communications studies, text mining and survey research. Taking an early exit from journalism, he obtained a masters in social and public communication and a PhD in social psychology from the London School of Economics and Political Science. Subsequently, he taught the MSc course, ‘The Social Psychology of Health Communication’ and was co-director of the MSc Health, Community and Development Programme. He was at the University of Bielefeld, Germany, as a postdoctoral researcher on the MACAS (Mapping the Cultural Authority of Science) project funded by the ESRC (UK), DFG (Germany) and ISSRC (India). MACAS examined the science content of newspapers in UK, India and Germany using computerised text analysis and user defined dictionaries. His approach to science communication is multidisciplinary, drawing on theories from sociology, psychology and media studies to explain social phenomena. He is actively engaged with international networks of researchers on text mining and the interaction between science and religion. He is on the advisory board of the International Research Network for the Social Study of Science and Religion based at the Newman University in the United Kingdom.

Dr Derek Fish

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**Towards more effective science communication for different groups in South Africa: a design-based research study**

(Session 11: Wednesday, 7 November 2018)

Co-authors: Saalih Allie, University of Cape Town; Nancy Pelaez, Purdue University and Trevor Anderson, University of KwaZulu-Natal

Abstract

This study seeks to contribute to science communication in South Africa by evaluating an aspect of the work done by interactive science centres. The focus of the study was grade 9 students from three different school groups: urban, township and rural, visiting the Unizulu Science Centre (in Richards Bay, South Africa) and attending a science show called “Good Vibrations” which presents concepts in sound and waves through the medium of musical instruments. The principal author’s long experience at Unizulu Science Centre has indicated that the three groups above have very different experiences during a visit which relate to their prior experience and educational opportunities. The different groups were compared and contrasted in terms of: general attitude; conceptual and visual difficulties with respect to sound; and prior knowledge and learning during the show. The implications of this study for the design and presentation of science shows (and for science communication in general) were then considered in the light of these findings. The initial study used a combination of qualitative and quantitative probes to measure learning and other outcomes. Valuable lessons were learnt about how well these probes performed in the evaluation of a science show, which will be extremely valuable to practitioners. The study was extended in an effort to refine and improve the show and boost learning outcomes. While performed in the context of science shows in science centres, this study nevertheless has relevance to all science communication. It offers a feedback instrument (using design-based research) to assist communicators in refining their message (and the instruments used to evaluate it) to suit the different groups they present to. Data and conclusions from the two studies will be presented.

Bio

Since graduating as a science and mathematics teacher (and after three years’ teaching), Derek has been running Unizulu Science Centre in Richards Bay, South Africa, for over 28 years. Derek’s passion is presenting science and mathematics in a way which encourages curiosity and inspires pupils to study further. He has presented science shows all over the world and presented at all eight of the Science Centre World Congresses. He represents Africa on the global committee of the Association of Science and Technology Centres and is a founder, former council member and president of the Southern African Association of Science and Technology Centres (SAASTEC). Derek’s work has been recognised with the National Science and Technology Foundation Award for the most outstanding contribution to science and technology by an individual in South Africa, the SA Institute of Physics Silver Jubilee Award, and other awards. Having graduated with an honours degree in physics and teachers’ diploma in 1987, he completed his PhD in physics last year (2017) with a study of pupil-learning at Unizulu Science Centre, which was published in “*Public Understanding of Science*” in 2016.

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**Enhancing science communication starts at school: Improving science teacher resources through the use of plain language**

(Session 4: Monday, 5 November 2018)

Abstract

Science education in South Africa lags behind that in many other countries. Learners' poor grasp of basic scientific concepts is often blamed on poor teaching. This paper aims to show how using plain language principles to communicate subject matter to under-resourced teachers has the potential to help them to change this situation. Good science teachers lay the foundations for more advanced and technical understanding of science at the senior secondary and tertiary phases. Unfortunately, in South Africa, many science teachers are underqualified. If teachers are not comfortable with their subject matter, learners are inadequately prepared for future science education. The situation is worsened by the fact that South Africa is a multilingual society, where gaps in language understanding may have a knock-on effect on science teaching. For more than 90% of South Africans, English is not their home language, but English is the primary language of education in South Africa and the lingua franca of science. Many science teachers are not fluent in English, and nor are their learners. Hence, it is vital to consider how scientific content is presented to teachers, so that they, in turn, can communicate the material to the learners. Plain language ensures clarity of information by explaining difficult or misleading terminology and implementing various types of communication strategies, to communicate full and complex information without overcomplicating it. Thus, basic and more advanced scientific concepts can be made more accessible to teachers, ensuring a less problematic transfer of knowledge and a foundation upon which learners can build a more advanced scientific vocabulary. Plain language further ensures a stronger correlation between the writer's intent and the reader's interpretation. Most current research on the science teaching dilemma explores the problem with multilingualism in South Africa, but few researchers have considered the possibility of proactively using plain language strategies to make pertinent information more accessible to teachers in the natural sciences. This paper reports on interviews conducted with science teachers and their views of how plain language can be used to improve their understanding of problematic areas in the curriculum.

Bio

I started my academic career at the University of Pretoria (UP) in 2008. After completing a BA in psychology and criminology, I attended Rhodes University where I attained a PGCE. Following this, I taught English at a semi-private high school for 2½ years while I completed a qualification in English studies through UNISA. Thereafter, I moved to a former model C school where I was appointed as an English teacher for a year and a half. In 2016, I completed an Honours degree in English studies through UP in order to embark on a career in higher education. For the past two years I have been working as an assistant lecturer in the Faculty of Engineering, where I assist students with the academic literacy component of their studies. Moreover, I am completing a masters in applied language studies, with a specific focus on plain language in natural science materials for teachers, through UP.

Dr Michael Gastrow

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**Public perceptions of science in South Africa: evidence and gaps**

(Session 9: Wednesday, 7 November 2018)

Abstract

Public perceptions of science in South Africa have been measured for some time, including nationally representative surveys held in 1999, 2010, 2013, and 2015. In a country that is as unequal and culturally diverse as South Africa, understanding the perceptions of different ‘publics’ is critical for policy, and informative for theory. We review the manner in which South Africa’s diversity is reflected in its perceptions of science, focussing on some key demographics, including age, income, education, gender, language/ethnicity, race, and religion. The most powerful statistical predictors of perceptions of science are age and privilege (of which income and education are analytical proxies). We reflect on what this means for South Africa’s future, as future generations, increasingly empowered by online access, play a greater role in both science and society. Despite our well-developed quantitative understanding of perceptions of science at the national level, a gap remains in the area of localised and qualitative research. We have yet to understand the causes of diverging perceptions of science, and how these are linked to the complexity of social and economic specificities. We propose that ongoing qualitative research at the science-society interface would enrich our knowledge by generating more developed explanatory mechanisms for our quantitative data.

Bio

Michael Gastrow is a chief research specialist in the Education and Skills Development research programme at the Human Sciences Research Council (HSRC). Gastrow holds a PhD in journalism from the Stellenbosch University. His PhD thesis examined representations of the Square Kilometre Array telescope in the South African media. One strand of his research has focussed on innovation and capability-building, including research into global innovation networks, innovation for inclusive development, and labour market dynamics. Another strand has focussed on public engagement with science, including the development of monitoring and evaluation frameworks for science engagement, and research (including theoretical studies and national surveys) on public perceptions of science. He is currently leading a South Africa – EU Dialogue on the 4th Industrial Revolution, and also providing research support to the Department of Science and Technology’s strategy and policy development initiatives in this area. Gastrow has published over 20 peer-reviewed journal articles, and authored two books: *The stars in our eyes: representations of the Square Kilometre Array telescope in the South African media* (2017, HSRC Press), and *Linking universities and marginalised communities* (2015, HSRC Press with Kruss). He has also edited *Capability Building and Global Innovation Networks* (2015, Taylor & Francis, with Kruss).

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**Monitoring and evaluation of a biosafety communication and engagement project: did we make an impact?**

(Session 7: Tuesday, 6 November 2018)

Abstract

In many countries the biggest current hurdle to the deployment of genetically modified (GM) crops is not governance or technical development and sustainability issues, but rather negative public perceptions. The necessity and value of science-based “biosafety” or “risk” communication to ensure public trust in GM governance systems, already approved GM crops and the value of GM technology as a research and developmental tool is therefore more crucial than ever. Biosafety South Africa has accepted the responsibility to facilitate the development of a biosafety communication strategy that would ensure a coherent and effective approach to biosafety communication in South Africa. The goal of a biosafety communication strategy was identified as the positive influencing of the national conversation around genetically modified organisms (GMOs) from a science perspective; in order to increase awareness and build confidence in the biosafety systems in place to ensure the safety and sustainability of GM activities and products. Such confidence will not only impact on the acceptability of the current products in the market, but more importantly also support the objectives of the national bio-economy strategy. While this strategy defines the broad goals and actions that would realise it, these were further concretised into an adaptive tactical plan with coalescing strategic objectives and well-defined, actions that will lead to the realisation of the strategic goal. This talk will focus on the necessary steps and considerations for compiling a monitoring and evaluation framework to assess the success and impact of the project. It will also serve as a tool to measure future activities and inform operational and strategic recommendations for the organisation.

Bio

Liezel Gouws is the project manager for communication and engagement at Biosafety South Africa. She has a PhD in plant biotechnology and completed postdoctoral fellowships at the Institutes for Plant Biotechnology and Wine Biotechnology at Stellenbosch University. She completed her undergraduate studies in Heidelberg (Germany) and in the USA.

Dr Lars Guenther

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**Public trust in science: A re-interpretation and systematization of representative surveys**

(Session 9: Wednesday, 7 November 2018)

Abstract

Trust has been described as a mediator between science and the public. In many areas of modern life, people are no experts and, thus, they have to rely on the knowledge and information provided by others; hence, they have to trust. For a long time, trust in science has been stated to be very high; recently, there have been discussion about a declining public trust in science. However, regarding surveys measuring public perceptions of science and technology around the globe, trust is often included on a rather superficial level without clear theoretical reflection on the trust concept. Actually, many of the items in these surveys that try to measure attitudes towards science, can be re-interpreted to be a measurement of different dimensions of trust, such as benevolence, expertise, and integrity. Using these dimensions of trust and differentiating between different objects of trust (system, organizations, and persons) leads to a new systematisation of surveys measuring public trust in science. This systematisation is able to highlight how trust has and has not been considered in surveys. To reach this new systematisation, in this paper a content analysis is conducted on the most recent global surveys measuring public perceptions of science and technology. This includes surveys of the Western world (e.g., Eurobarometer for Europe, National Science Board for the United States), but also surveys from Asia, Latin America, Oceania and Asia. The findings highlight that trust has often been considered in these surveys on a personal level (trust in scientists), but rarely on an organisational level (trust in scientists compared to other professions) or on a system level (overall trust in science). At the same time, trust measurements have rarely considered different dimensions of trust. Furthermore, while there are questions about media, media have not been integrated as mediators and objects of trust.

Bio

Lars Guenther is a research associate at the Institute of Communication Research at Friedrich Schiller University in Jena, Germany, and extraordinary senior lecturer at the Centre for Research on Evaluation, Science and Technology (CREST) at Stellenbosch University. He is interested in public perceptions of (controversial) science, science and health journalism, as well as public communication about risks and scientific (un)certainty.

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Beyond science awareness: embedding responsible research and innovation (RRI) in the research agenda

(Session 2: Monday, 5 November 2018)

Abstract

Investigating how to make Responsible Research and Innovation (RRI) a reality, an international project is underway to improve how research institutions integrate with society. New Understanding of Communication, Learning and Engagement in Universities and Scientific Institutions (NUCLEUS) is a Horizon 2020 project, funded by the European Union. Fourteen countries, including South Africa, are taking part to ask some fundamental questions on how the research agenda operates in each country: What institutional barriers prevent organisations from aligning research with society's needs? How can these obstacles be overcome? The South African Institute for Aquatic Biodiversity (SAIAB), a research facility of the National Research Foundation, has been selected as an 'embedded nucleus' or test site, for the project. SAIAB's unique research platforms, scientific leadership and expertise in marine and freshwater aquatic biodiversity, and its established multi-institutional, multi-disciplinary stakeholder networks are vital to the national interest when dealing with issues arising from exponentially increasing pressures of human population growth, climate and global change. This presentation will provide an overview of how being an embedded nucleus has helped SAIAB to assess the extent to which our research is "engaged" and how we have taken steps towards integrating RRI and engaged research into our strategic thinking. I suggest that science communication in a democratic South Africa should be seen as integral to the research process so that the research agenda can benefit from knowledge or practice held within non-academic communities. RRI calls for direct, meaningful and two-way engagement, early in the research and innovation pipeline, between scientists and the public as beneficiaries of the products of scientific research. We recognise that the responsibility of communicating science with society is especially relevant in South Africa. However, the dialogue required is still pretty much a monologue. We need creative communicators as brokers of communication between science and society and smarter strategies to unravel complex scientific ideas. Part of this presentation will question prevailing notions of 'recipients' and 'agents' in the communication process.

Bio

Penny Haworth is manager of communication and governance at SAIAB, a research institute of the National Research Foundation, located in Grahamstown in the rural Eastern Cape. She started her career teaching English and history and evolved through museum education, educational resource management, events management and academic publishing, to science communication. She is currently managing SAIAB's role as test site for responsible research and innovation (RRI) on the EU-funded NUCLEUS project exploring to what extent SAIAB fosters a culture of engaged research and how the principles of RRI can inform the institute's transformation agenda and be entrenched in its strategic planning. Using platforms such as SciCOM100, she hopes to help grow the NUCLEUS Living Network into a sustainable global force for change.

Professor Eric Jensen

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**Why impact evaluation matters in science communication**

(Session 8A: Tuesday, 6 November 2018)

Abstract

Science communicators need to know when their practices are working (or not!) and why. High quality impact evaluation shines a light on how science communication practices can be developed and improved. Science communicators who ground their practices in such evidence are more likely to avoid negative impacts stemming from their activities and to enhance positive impacts. Using examples from science festivals and other science communication activities, this presentation shows why accurate evaluation is so important to ensure success in science communication. Jensen contends that a 'repeated measures' pre/post evaluation design should become much more widely adopted across the sector to inform much needed improvements relating to social inclusion and impact.

Note: Professor Jensen will also co-present with Professor Anusuya Chinsamy-Turan on the topic: **Evaluating the effectiveness of a science communication MOOC** (see Chinsamy-Turan).

He also presents a full day pre-conference workshop on **evaluation in the field of public science communication** on Friday, 2 November 2018.

Bio

Eric Jensen has two main research specialisations: Public engagement, and media. He also contributes to the development of impact evaluation methodology and social change theory. His research on the impacts of public engagement cuts across a wide range of settings, from zoos to conservation training programmes to museums (e.g. Natural History Museum, University of Cambridge Museums) to festivals (e.g. Cambridge Science Festival and the Cheltenham Festivals). His recent research projects have also investigated the impacts of online public engagement with research, the role of digital technology in evaluating arts and culture experiences, and a Sciencewise project: The Role of Social Media in Public Dialogue and Policy. He is also participating in CUSP (Center for Urban Science and Progress), based at New York University. His research on science in the media has included a detailed investigation of coverage of the issue of therapeutic cloning in the US and UK.

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**Country-specific factors that compel South African scientists to engage with society**

(Session 9: Wednesday, 7 November 2018)

Abstract

My study of the public engagement behaviour of publicly visible scientists in South Africa provides new insight into how factors linked to history, culture, politics, socio-economic conditions and the bio-geographical environment in South Africa affect the participation of local scientists in public science engagement. Earlier studies of the factors that motivate scientists towards public engagement have largely overlooked these influences and focused, instead, on factors such as age, seniority, gender, field of research and institutional effects. However, it is now clear that these country-specific factors can largely determine scientists outreach behaviour. These findings are relevant to policymakers and science managers who are interested to increase scientists' participation in public engagement, particularly in the South African context.

Bio

Marina Joubert is a science communication researcher and a member of a small research team associated with the South African Research Chair in Science Communication, hosted at the Centre for Research on Evaluation, Science and Technology (CREST) at Stellenbosch University. Before a career switch to the academic world, she was a science communication manager at the National Research Foundation and ran her own science communication consultancy for ten years. In addition to coordinating and presenting an online science communication course with a focus on Africa, she teaches several modules on public engagement with science as part of an MPhil programme on science and technology studies. Her research interests focus on scientists' role in the public communication of science, online interfaces between science and society and the changing policy environment for public communication of science in South Africa. Marina serves on the executive committee of the global PCST (Public Communication of Science and Technology) network; the editorial boards of two journals: *Science Communication*, and *JCOM (the Journal of Science Communication)* and she is a technical editor for *Geoscience Communication*. She holds BSc and BSc honours degrees (*cum laude*) from Stellenbosch University, an MSc (Agric) (*cum laude*) from the University of Pretoria and a PhD from Stellenbosch University. In July 2015, she won the (South African) National Science and Technology Forum Award for her contribution to promoting science communication and outreach in the country. In October 2018, she was amongst the first recipients of a Media Excellence Award in recognition of top media commentators and newsmakers at Stellenbosch University.

Paul Kennedy

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**The challenge of reaching policymakers in democratic South Africa**

(Session 5: Tuesday, 6 November 2018)

Abstract

Over the last four years, ScienceLink has worked with a broad spectrum of researchers and research organisations, most of whom struggle to reach people in a position to put policy into practice. In a constricted policy environment, and with a growing anti-science sentiment among global leadership, how do we ensure that policy decisions are guided by relevant and accurate information? And how do we know if our efforts are having the desired effect? We asked several researchers we have worked with about the challenges and successes of communicating with policy-makers and tried to glean some insights on how best to get your research heard. In this session we will try to share those stories from fields like education, public health, food security, and sustainability, as well as give some examples of how we try to reach policy-makers in our work. Key questions to explore are: how do we measure whether we are reaching policymakers, and whether reaching them has any effect on policy? And what can we do to make sure South African policy-making is well-informed?

Bio

Paul is a reformed microbiologist now making a career in digital science communication. As a co-founder of ScienceLink and a volunteer at SciBraai, he works to promote good science communication at universities, research organisations and in civil society, and is always looking for new ways to get important messages across to the right audiences. He loves good communication, innovation and being his own boss, and dislikes ignorance and intolerance in all forms. When not helping make South African research relevant, he can be found on the mountain or in the garden.

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**Collaborative communication of science: empowerment through research, rhythm and rhyme**

(Session 8B: Tuesday, 6 November 2018)

Abstract

Adolescents living in peri-urban settings in South Africa face multiple challenges to realising their own health and wellbeing, with very few opportunities for young people to gain practical skills and the self-efficacy necessary to address these challenges. One area in which they have the potential to make an impact is that of water-related disease. In this context Jive Media Africa, a media agency with a focus on health communications, initiated the Hip Hop Health project with funding support from the Wellcome Trust. The project made use of hip hop-centered community music making to enable 60 young people from three schools in peri-urban communities in KwaZulu-Natal to share, with their broader communities, findings from research tasks that they had undertaken in the area of water and health. This qualitative case study explored the affordances of this community music making process for the adolescents involved. The study employed thematic analysis of thick descriptions of video excerpts, song lyrics and focus group transcriptions, drawing strongly on a Freirean construct of conscientisation and on youth empowerment theory. This research suggests that the writing and performance of hip hop songs empowers young people to engage with complex issues affecting their health and wellbeing. They gained new knowledge and hope for their futures, as individuals and as a community. The overarching theme of empowerment is supported by three subthemes, each of which was facilitated by the creation and performance of hip hop songs. In 'becoming', young people gained knowledge and were empowered as individuals. Through 'belonging,' the learners forged mutually supportive relationships with their peers, families and the broader community. Finally, through 'believing', young people began to conceptualise the future as holding hope and possibilities, based on their learnings and the experiences of the process. In this sense, empowerment was seen to take place at an individual and a community level, and demonstrated elements of building critical consciousness through cycles of action and reflection.

Bio

Hilary Kromberg got swept up by the whirlwind that has been SciCom in South Africa 16 years ago when combining her communications expertise (in her job at the Madam & Eve cartoon strip and SABC Education) with Robert Inglis' existential crisis post over-winter trip to Antarctica (as an engineer). Hilary and Robert teamed up to deliver a ground-breaking DST-funded national SciCom comics campaign around the total solar eclipse in 2002. This partnership gave birth to Jive Media Africa, of which Hilary is the creative director. Jive is an NSTF Award-winning niche media house working with South Africa's brightest minds to bring innovative science engagement initiatives to the public. These include FameLabSA, Mission MeerKAT and Science Spaza. Hilary is passionate about contributing to the building of Africa's future leaders through STEAMi. She has a BA degree (Wits) in industrial sociology and social anthropology, as well as a MMus degree (UP) in adolescent health and music communications.

Andrea Leenen

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Public communication of the science of our shared origins: PAST's 'All from One' campaign and exhibition and the 'Walking Tall' educational theatre project

(Session 8B: Tuesday, 6 November 2018)

Co-presenter: Rob Blumenschine

Abstract

The sciences related to the origins and evolution of life and humankind (origin sciences) can be a potent tool for promoting African dignity, social cohesion and non-racism, and the conservation of natural environments and biodiversity. However, most public communication of the origin sciences emphasises new fossil discoveries (which are unpredictable in their timing and fleeting in their impact on non-scientists), their discoverers (where science celebrity can overshadow scientific relevance), or exhibitions limited to major discoveries and a chronicle of the history of life.

PAST, the Palaeontological Scientific Trust, is a South African public benefit organisation that since 1994 has raised funds to support research, postgraduate bursaries and technical capacity in the African origin sciences, spanning the whole of the palaeontological record and the African continent. PAST has also become increasingly dedicated to secondary school education and public understanding of origin sciences, the former with the Walking Tall Educational Theatre Project since 2002, and the latter with the All from One campaign launched in 2015. Walking Tall has given origin sciences workshops to 1.3 million students and teachers, featuring a physical theatre production depicting the evolution of life and humankind followed by a science session. Walking Tall originally focused on filling gaps in the often inadequate teaching of evolution in South African secondary schools. Increasingly, Walking Tall has also become a platform for highlighting the shared African origins of humankind and the shared origins of all living things, two bodies of knowledge that underpin African dignity, anti-discrimination, and pro-conservation themes of the All from One campaign. In addition to Walking Tall, the campaign features exhibitions that have toured South Africa and have been displayed at the United Nations in Geneva, and a new website that is intended to give the campaign a global reach. PAST has a monitoring and evaluation system for Walking Tall and is developing additional ways to measure the public impact of this educational programme and other elements of the All from One campaign.

Bio

Andrea Leenen has been employed by PAST, the Palaeontological Scientific Trust, since 2000 in various management positions, currently as CEO. She holds an honours degree (with distinction) in archaeology and anthropology and an MSc degree (with distinction) in palaeontology from the University of the Witwatersrand. Her research interests allow her to combine her passions for grassroots science education, nature conservation, the performing arts, the public understanding and communication of the palaeosciences and the advancement of African leadership in the field. The power of a simple understanding of the science of our African origins to advocate anti-discrimination, conservation and a love of Africa is what motivates Andrea in her ultimate goal: PAST as a global, African-based movement contributing to the betterment of our planet.

Professor Janice Limson

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**Towards co-creation of technology and innovation with communities: models and benefits in higher education**

(Session 2: Monday, 5 November 2018)

A core part of most government science strategies in South Africa is the use and application of science to address pressing needs in the areas of water, health and agriculture. Biotechnology is billed as a field of study that has strong potential for socio-economic impact in multiple areas. Emphasis has thus been placed on the higher education institution space as a driver for scientific research and the translation of that into much needed products and new processes intended for the public. However, within this innovation process, direct engagement between society and scientists is less well-defined and often overlooked. Much scope exists to explore models of engagement between scientists and the public in South Africa such that the “public are not merely passive recipients of science and technology, but are important players in processes that shape the focus and patterns of science, technology and development” (DST Science Engagement Strategy, 2015). These concepts closely echo the Responsible Research and Innovation (RRI) framework which is “an approach that anticipates ... societal expectations with regard to research and innovation, with the aim to foster the design of inclusive and sustainable research and innovation” (see <http://ec.europa.eu/programmes/horizon2020/en/h2020-section/science-and-society>). One of the key concerns of the RRI framework is embedding its principles and approaches into the higher education training of science students. In this study, we explore different models of direct engagement between science students and the public. The study examines whether these approaches result in RRI learning outcomes, while exploring the benefits of the engagement to science students and in particular their motivations to conduct research which has direct societal impact.

Bio

Janice Limson is a professor of biotechnology at Rhodes University. She holds the DST-NRF South African Research Chair in Biotechnology Innovation and Engagement and serves as director of the Biotechnology Innovation Centre (RUBIC) at Rhodes. There she leads a large postgraduate research group focusing on the development of products and processes with direct societal impact. This includes the areas of water treatment and remediation and the development of rapid diagnostic tests for healthcare management in remote areas. Through the work of the Chair, she studies how direct science engagement and co-creation with communities on technology which could solve local problems holds multiple benefits for communities, science students and ultimately the successful development and deployment of beneficial products. As part of this, funding from UNICEF supports her group’s healthcare research which focuses on developing diagnostic tests that may flag high-risk pregnancies early on in remote areas. She is a former recipient of a Highway Africa New Media Award for Journalism, the NSTF Award for Outstanding Contribution to SET in SA, first runner up in the DST Women in Science (Life Sciences), winner of the Vice-Chancellor’s Distinguished Research Award at Rhodes and twice featured as one of South Africa’s Mail & Guardian Young Leaders.

Lindsay Marshall

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**Public communication of science: a review of Maropeng's contribution**

(Session 7: Tuesday, 6 November 2018)

Abstract

The Cradle of Humankind World Heritage Site was listed as a World Heritage Site by UNESCO in 1999. The Maropeng exhibition is an interactive and informative exhibition inside the building which showcases the progress that humankind has made from our early beginnings to where we are today. It also promotes a consciousness of preserving our natural heritage for future generations. Our recently opened experience lab and virtual lab presents the principals of fossilisation especially for our younger guests. The gallery, a temporary exhibition space, showcases some of the latest research currently being undertaken in the Cradle of Humankind. The Sterkfontein Caves site is home to a range of facilities. The Sterkfontein Caves are owned by the University of the Witwatersrand, whose scientists have been responsible for the main excavations of the World Heritage Site. Our role within the realm of scientific communication: As the official visitor centre, we have been presented with the unique challenge of presenting content that was not originally top of mind both within an educational and public context, and due to South Africa's history, what was known about it was fraught with misunderstanding. This was together with a mandate of growing this site as a tourism and education destination, and such presented a series of unique challenges that we have dealt with over the years and now positioned our destination as critical for the publics' understanding of human evolution and development. Science communication is defined as the public communication of science-related topics to non-experts and represents a key aspect of how we present information to our visitors. Scientific integrity is core to the messaging that we give through our online platforms, exhibition content and media collateral as well as the content presented to our visitors by our guides. We use a variety of methods to share this critical scientific information, both to our prospective visitors and those who are visiting. This presentation will be to review our role as scientific communicators in telling the story of the Cradle of Humankind World Heritage Site.

Bio

I'm a passionate marketer of our prehistory and love selling this experience to the world. I have a background in archaeology, heritage studies and marketing. My aim is to provide content to our guests in an accessible way whilst still maintaining scientific integrity.

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**How scientists can use social media to democratise science in South Africa**

(Session 3: Monday, 5 November 2018)

Abstract

One of the challenges in science communication in South Africa that impede on the democratisation of science is the poor coverage of science by the media. Science communication has relied on the traditional media to disseminate scientific information to a diverse audience for decades. The normative role of the media is to inform and educate the public. The print and broadcast media shape the public discourse of science in South Africa. When non-scientists have more access to scientific information, they are able to engage critically with scientific research findings and are aware of scientific research outputs in South Africa and how it impacts on them. This is one of the important tenets of democratising science, because the major source of research funding is public funds. It is important for the scientific community to communicate science to the public in a simple way (not to dumb it down), in order for non-scientists to understand. The use of social media in science communication in South Africa to engage diverse audiences who are non-scientists is lacking. In this paper, the author explores the use of social media in South Africa by scientists and how social media can be used to engage non-scientists and improve accessibility of scientific information with specific reference to Twitter.

Bio

My academic background is in journalism and I have worked as a journalist in the Eastern Cape before crossing the floor to communication. I am currently a part-time student, studying towards a Master's degree in Journalism at Stellenbosch University. I am working at the South African Agency for Science and Technology Advancement (SAASTA) as a media coordinator since 2015. I am running a science journalism internship programme, where we employ unemployed graduates (in journalism, communication and science/technology) for a year. The main responsibility of our interns is to produce science and technology related stories in different indigenous languages in South Africa for the community media. I am passionate about science communication in different languages and the role of the media to make science accessible. I am interested to find out how our scientists communicate their work on social media and whether scientists use social media more creatively to engage non-scientists about their research or science matters. I am fascinated by how social media can democratise science. I believe that social media platforms such as Twitter can enable citizens to critically engage with scientific research that is produced in South Africa and the world. I believe that social media plays a critical role when it comes to science in society.

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***Homo naledi* and humanity versus dinaledi and the SKA: communication or persuasion?**

(Session 5: Tuesday, 6 November 2018)

Co-author: Anthony Lelliott, University of the Witwatersrand

Abstract

In 2012, South Africa was identified as one of the sites for the Square Kilometre Array (SKA) radio telescope. In 2015, *Homo naledi* was announced as a new species of hominin found in a cave in the Cradle of Humankind, South Africa. These two major scientific announcements are likely to have considerable impacts on their respective fields of science over the next decades. This presentation discusses ways in which the science in these fields has been communicated to the South African public. These ways include initial major proclamations in which the importance of the discovery (*H. naledi*) and the potential for the development of science and engineering in South Africa (SKA) were announced. The presentation then examines, through secondary sources, the views of the public(s) with respect to the two projects. Media reports have grappled with understanding the significance of *H. naledi* in relation to human ancestry. Interviews with the guides at the Cradle of Humankind suggest that visitors have varied opinions on its discovery and the implications for early human origins. While there is genuine interest in the discovery process, a proportion of visitors remain opposed to the notion of human evolution from other species. Visitors most commonly asked about the relationship between *H. naledi* and modern humans as well whether humans have developed from apes or monkeys. This suggests a degree of bewilderment about human origins. Attitudes towards the SKA are even more varied: from government to scientists to journalists to residents of the radio quiet zone in the Northern Cape. Each sector has its own agenda for welcoming or opposing the development of the SKA. Our conclusion is that exciting discoveries and large scale and significant projects are communicated in big picture and dramatic terms which might promote their initial impact in the press, but in the long term more trouble needs to be taken to explain them to the layperson in more nuanced terms that also explain their limitations.

Bio

Ian obtained his PhD in palaeontology from the University of the Witwatersrand studying a unique fauna of dinosaur-age fossil beetles and the environment they lived in, in central Botswana. During a stint as a veterinary entomologist at Onderstepoort, he realised that his real passion was education and public engagement in science. After completing a postgraduate diploma in education, he worked as a science and environmental education specialist at RADMASTE (Centre for Research and Development in Maths, Science and Technology Education). After some consulting work in the science centre industry, Ian went on to manage the outreach programme of the School of Geosciences and Bernhard Price Institute of Palaeontology at the University of the Witwatersrand. It was at this time that Ian discovered the joys of talking about evolution, fossils and genetics. He recently took over the role as head of education and outreach for the Evolutionary Studies Institute and education specialist for the DST-NRF Centre of Excellence in Palaeosciences.

Corlia Meyer

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**Perceptions of the environment and environmental issues in Stellenbosch, South Africa: A mixed-methods approach**

(Session 10: Wednesday, 7 November 2018)

Abstract

Concern for the natural environment was historically limited to developed nations, but this concern spread globally during the late 20th century. The globalisation of environmental concern has made the research of environmental perceptions of developing nations crucial. Perceptions of the environment and environmental issues can serve as indicators of actual environmental degradation, it can influence the public's participation in environmentally friendly activities, and it can influence an individual's pro-environmental behaviour. This research aims to contribute to the literature by examining the public's perceptions of the environment in Stellenbosch, a town in the Western Cape, South Africa. To the researcher's knowledge, this is the first mixed-method study investigating socio-demographic and environmental communication variables influencing the public's perceptions about the environment and environmental problems, in a town in the Western Cape, South Africa. Data collection took place in four neighbourhoods in Stellenbosch, South Africa. Respondents from the Stellenbosch public did not perceive environmental problems as a serious social problem and ranked crime, poverty and corruption as the three most serious social problems South Africans have to face. Of the environmental problems, the respondents perceived water scarcity (drought), climate change and pollution as the three most severe environmental problems South Africans face. The gender, population group, socio-economic status and level of education of an individual influenced how seriously a respondent perceived environmental problems and played a role in how knowledgeable an individual is about the environment. The research has confirmed previous findings that female, Caucasian individuals with high levels of education and income perceived environmental problems as more serious and are more concerned about the environment.

Bio

Corlia completed her BSc (Agric) in conservation ecology in 2011 at Stellenbosch University, followed by an honours degree focused on raptor rehabilitation in the Western Cape. Following that, she joined the Animal Demography Unit at the University of Cape Town, where she completed her MSc in zoology in 2014 working on the endangered bank cormorant. In 2015, she worked as an environmental educator in marginalised communities around the Cape Town region, educating high school learners on environmental problems and responsibility. This is where she realised the lack of environmental communication, which motivated her decision to continue with her doctorate. During her doctoral research at Stellenbosch University, she also worked as a research assistant supporting work of the members of the South African Research Chair in Science Communication.

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**Beyond fear and panic: The role of communities in biodiversity conservation**

(Session 10: Wednesday, 7 November 2018)

Co-author: Moleseng Moshobane, South African National Biodiversity Institute

Abstract

Conservation science is indivisibly linked to both biological and societal phenomena. Successful conservation of biodiversity can be directly or indirectly affected by both psychological, cultural, political and evolutionary factors (i.e. the human factor). The fact that most fundamental and intractable glitches that conservation biologists face have the human factor as the central feature, indicates the importance of explication of conservation education practice. The study aimed to investigate knowledge, awareness and behavioural change toward biodiversity conservation. Pre-visit and post-visit questionnaires were administered to investigate biodiversity literacy, knowledge of threats and willingness to act to halt and eventually reverse the loss of biodiversity. The study focused on marginalised remote communities in Limpopo, and a total of 37 individuals participated. In total, 95.1 % were first time visitors to the biodiversity conservation centres. There was an increase from pre-visit (26.3%) to post-visit (85.1%) in respondents demonstrating at least some positive evidence of biodiversity understanding. Similarly, there was an increase from pre-visit (33.5%) to post-visit (93.8%) in respondents who could identify actions to help protect biodiversity. Positive change in attitude towards fauna was more prevalent, particularly reptiles. Overall, the results of this study show the value and impact of educating the public about biodiversity conservation. Therefore, through active involvement and educating the public about biodiversity pressures, governments could achieve the Aichi Biodiversity Targets, Strategic Goal A: Target 1 which states that “by 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.”

Bio

Rendani Mulaudzi holds a master of environmental sciences (University of Venda) and is currently a PhD student and lecturer in the Department of Environmental & Occupational Studies at the Cape Peninsula University of Technology. His research interests are in climate variability, climate change and environmental sustainability communication in southern Africa. During his tenure at the Applied Centre for Climate and Earth Systems Science (ACCESS), currently known as the Alliance for Collaboration on Climate and Earth Systems Science at the Council for Scientific and Industrial Research (2014–2016), he worked directly with students from historically disadvantaged universities in South Africa. In his term as the B.Tech coordinator (youngest at the Cape Peninsula University of Technology) in environmental management (2016–present), he successfully recruited and supervised 21 students. At the faculty (Applied Sciences) and departmental levels, he serves in the admission and research committees, respectively. He is also actively involved in community engagement activities. He played a leading role in establishing Belemu Community Ecotourism Organisation (2018), and has been serving as its chairman to the present. He serves as a member of the education steering committee at ACCESS.

Dr Henk AJ Mulder

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**Science shops for interactive science communication: experiences in Europe**

(Session 12: Wednesday, 7 November 2018)

Abstract

Science shops are units that offer independent and participatory research support in response to concerns expressed by civil society actors. They are often based at universities, where staff and students can take on research requests from civil society organizations. When students do this as part of their curriculum, there are very little additional costs involved – only for process management. Benefits are many: practice learning and social awareness for students, new angles and data for researchers, PR for the university, empowerment for civil society organisations that could not otherwise afford to commission research – and more knowledge is mobilised or created, together, that can solve problems, and serve improvement of services, products or policy. This talk will give examples from various projects in the natural sciences, and put it in the context of knowledge co-creation, interactive science communication and responsible research and innovation (RRI).

Bio

Henk Mulder has been coordinator of the Science Shop at the faculty of science and engineering of Groningen University, The Netherlands, since 1989. He also is the chair of the collaborating Science Shops of the different faculties of Groningen University. Next to this, he is also lecturer in science and society studies and director of the two-year master programme in science communication. Henk led the EU funded project PERARES (Public Engagement with Research and Research Engagement with Society), which ran from 2010 to November 2014. With 25 partners in 16 countries, it strengthened co-operation between researchers and civil society organisations in setting research agendas. He was a partner the EU project Engage2020, aimed to advance engagement in H2020 projects (2013–2015). He holds an MSc in chemistry and a PhD in energy and environmental sciences, and is one of the founders of the international science shop network “Living Knowledge”.

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**A meta-analysis of science communication methods in science engagement**

(Session 7: Tuesday, 6 November 2018)

Abstract

This paper will provide an overview of the mixed-methods research methodology on secondary data used in a study that focused on the impact of communication-driven science engagement by the South African Agency for Science and Technology Advancement (SAASTA) over a five-year period. Firstly, the paper will focus on the quantitative data collection and the data analysis against the types of engagement activities, the major themes, and the number of people reached within the nine different provinces that constitutes South Africa. The second section of the paper will reflect the meta-analysis of findings, as well as systematic review of qualitative information, stemming from several mixed-method studies that was done by the SAASTA Monitoring and Evaluation Division on project-level science engagement initiatives, with a narrowed focus on communication methods to identify common effect. Although the initial study was conducted to establish best practice guidelines for communication methods during science engagement, as extracted through the mixed-methods research process, this paper will focus more on the methodology used to establish the subsequent findings for communication methods. In context, SAASTA, a business unit of the National Research Foundation (NRF) in South Africa, acts as an interface between science and society and was tasked to drive science engagement on behalf of the Department of Science and Technology (DST). In this instance, science engagement relates to outreach interventions that are focused on three main target audiences; school-going learners, educators, and members of the public. These interventions are further segregated into science-related educational, awareness, and communications initiatives, with the ultimate objective of advancing science in society.

Bio

Lindie Muller's background spans the fields of business administration, -management, and -operations, as well as academic research. Over the course of nine years, the South African Agency for Science and Technology Advancement (NRF|SAASTA) provided her with the unique opportunity to develop diverse skill sets, which subsequently resulted in her gaining substantial institutional knowledge from several perspectives; business, government, and public science engagement. Drawing on a broad range of experience and her ability to analyse data, she currently specialises in science engagement performance reporting for the National Research Foundation and its entities; media monitoring and reporting within the National System of Innovation and project-level monitoring and evaluation for NRF|SAASTA. One of her core interests is rooted in research, which she further develops by providing investigative assistance, data analysis, and editorial guidance for emerging researchers. Earlier in 2018, she presented a visual talk on a study titled "NRF|SAASTA: An interface between science and society through science communication" at the international Public Communication of Science and Technology Conference in Dunedin, New Zealand.

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**Community conversations as space for social change within church groups**

(Session 6: Tuesday, 6 November 2018)

Abstract

Stigma has been identified as a primary barrier to effective HIV prevention and the provision of care and support to people with AIDS. Much has been written about the need to involve communities in efforts to reduce HIV/AIDS stigma. However, little is known about the psycho-social pathways between participation and stigma reduction or the most appropriate strategies for ensuring such participation. Using the social capital and the notion of an 'AIDS competent community', this study explores how churches tackle HIV/AIDS stigma. It explores three issues: i) the extent to which church groups perpetuate or reduce stigma, ii) possible differences between the role played by three church groupings in relation to stigma and iii) how 'community conversations' can be used as an approach to develop more effective responses to stigma amongst church members. A total of 54 in-depth interviews and 24 community conversations (three sets of community conversations with eight church groups) were conducted involving a total of 198 participants. There was a clear need for social spaces and dialogue in these communities. The study also noted that when organisations implement their projects, people lack a sense of ownership to the projects since it's not community initiated. When implementers eventually move out of the community the project ceases to function unlike when they are given the sense of entitlement. From the findings it may be necessary to provide social space to communities which in turn provides them with a sense of ownership. Community conversations encourage ownership and responsibility for change and draws on local capacities and resources – allowing communities to identify the social capital evident within their localities.

Bio

Mercy Murire completed her MSc in health community development and PhD in social psychology at the London School of Economics and a postdoc at Rhodes University. Mercy is currently a senior researcher at Wits Reproductive Health & HIV Institute (WitsRHI). Mercy has over ten years' experience working in Zimbabwe, UK and South Africa. Her public health research interests include HIV stigma, oral pre-exposure prophylaxis (PrEP) and the intersectionality of sexuality and sexual health research using critical reflective inquiry within the public health discourse.

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**#MakingScienceAccessible through new media technologies: A perspective from a research university**

(Session 3: Monday, 5 November 2018)

Abstract

The digital transformation of the media and new ways of consuming media have necessitated the restructuring of newsrooms that has resulted in a dramatic reduction in the number of specialist journalists, particularly those reporting on specific beats like science, health and education. Concomitantly, scientists, researchers and scholars in egalitarian societies at publicly-funded institutions are increasingly encouraged by donors, institutions, the state, civil society and other publics to make their research findings and new knowledge accessible, relevant and visible in the public sphere. Given that the traditional media in South Africa can no longer serve as the sole conduit for the transmission of new information to the public, universities are increasingly developing their own communities using new media platforms, and growing these audiences through the use of creative content and direct engagement. The use of social media, online applications, virtual and augmented reality and multimedia content in making knowledge accessible to multiple publics will be explored in this presentation.

Bio

Shirona Patel is curious about the world and is passionate about working with smart academics and students to make research and science accessible and understandable to multiple publics. From telling the stories of dung beetles and pre-historic fossils to sharing new knowledge about the stars or HIV/AIDS, she enjoys piquing the interest of ordinary people through new creative technologies like video, animation and virtual reality. As the head of communications at the University of the Witwatersrand, she works with researchers in all areas of science, technology, engineering, arts and mathematics. The commissioning editor of a magazine and digizine called Curios.ty, she encourages everyone to always ask questions. She serves as the communications manager in the office of the vice-principal at Wits and is a full member of senate and the senior management group. Shirona has also worked for several global clients in the education, healthcare and finance sectors, across Africa. She edited many publications, including a magazine called Lesea at the age of 22 and worked in community radio for five years (part-time). She was elected as an ambassador for the Council for Advancement and Support of Education's Africa online community in 2016.

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**Indicators for engagement in open science**

(Session 7: Tuesday, 6 November 2018)

Abstract

This presentation will introduce draft report by a newly established European Union expert group: The Expert Group on Indicators for Researcher's Engagement with Open Science and its Impacts, chaired by Paul Wouters, of which I am a member. We will engage with question such as: How can the responsible engagement of the scientific communities with open knowledge practices be stimulated? In what way may current evaluation protocols hinder the development of open science and scholarship? Which new indicators can be developed to ensure that the potential of open research is realized? And how can they contribute to a more robust and high quality creation of new knowledge? Open research and scholarship has different meanings in different disciplines in the sciences, social sciences and arts and humanities. Hence, the new expert group will develop recommendations that can be adapted to the specific needs of a particular field of research. In addition, national and regional contexts may also influence the priorities that should be set regarding open research and innovation practices. The expert group approaches opening up knowledge creation and circulation as a truly global challenge with different requirements in different regions. The expert group will pay specific attention to the current use of indicators in research assessment and their implications for opening up current knowledge producing and sharing practices.

Bio

Ismael Rafols is a science policy analyst at Ingenio (CSIC-UPV, Universitat Politècnica de València), visiting professor at CWTS (University of Leiden) and an adjunct faculty at SPRU (Science Policy Research Unit at the University of Sussex). He develops more plural S&T indicators for informing evaluation, funding and research strategies. Ismael received a PhD in biophysics from Tohoku University (Sendai, Japan) and was postdoctoral researcher in nanobiotechnology at Cornell University. Currently, he is working on research portfolios to facilitate deliberation on research prioritization for grand challenges such as bird flu or obesity. He is also exploring inclusive metrics, to correct for indicator biases and their effects, for example regarding local knowledge.

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**Small holder farmers' perceptions on climate variability in relation to climatological evidence in the Molemole Municipality in the Limpopo Province of South Africa**

(Session 10: Wednesday, 7 November 2018)

Abstract

This current study posits that discrepancies between farmer perceptions and climatological evidence will negatively impact on farmer adaptation options and outcomes. The objectives of the study were to (1) investigate farmers' perceptions of climate variability, (2) compare farmers' perceptions of climate variability with climatological data and (3) appraise farmers' adaptive strategies to climate variability. A total of 125 farmers from Botlokwa participated in the study. The choice of this village is because; (a) it comprises predominantly of rural farmers, involved in rain-fed subsistence agriculture, (b) they receive limited government intervention, and (c) are near a functional climate station (Polokwane Airport Weather Station). Based on purposive sampling, a two-part, closed-ended questionnaire was administered to the farmers. Farmers' perceptions of climate variability were assessed using basic descriptive statistics based on summary counts of the responses with Statistical Package for Social Science (SPSS) programme. Logistic regression analysis was used to compare differences in perception (mean responses) across all five villages. Mean annual temperature and rainfall data (30 years) analysed using Microsoft Excel was used to compare farmers' perceptions on climate variability with climatological data. In order to appraise farmers' adaptive strategies, the Adaptation Strategy Index (ASI) was employed. Results indicated that there were no significant differences in perception towards climate variability across all five villages. Farmers' perceptions of climate variability were consistent with recorded meteorological data. Based on the ASI data, changing planting dates, crop diversification and planting of different variety of crops were highly important while the use of insurance and subsidies were least employed by the farmers.

Bio

Maropene Rapholo obtained a BSc Geology (earth science) from Stellenbosch University in 2012, followed by BSc Honours (geography and environmental studies) from the University of Limpopo in 2014. She completed her MSc (geography and environmental studies) at the University of Limpopo in 2018 where she currently works as a technician. She is a member of the Society of South African Geographers.

Dr Elizabeth Rasekoala

African Gong – the Pan-African Network for the Popularization of Science & Technology and Science Communication

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**Science communication and democracy in Africa: challenges and prospects for transformation in an age of globalisation, populism and structural inequalities** (Session 1: Monday, 5 November 2018)**Abstract**

Globally, the 21st century is ushering in an age of nationalism and political populism, as politicians and citizens feel increasing impotence, faced with the inexorable power and reach of both globalised technology and financial systems. This ‘double whammy’ is increasingly usurping the power of nation states and undermining the efficacy of national democratic systems to act in the interests of their citizenry. Thus, have we ended up in the age of ‘post-truth’, authoritarianism and systematic structural inequalities. The African scenario is furthermore challenged with growing religious, tribal and ethnic unrest leading to the breakdown of democratic systems, and more de facto ‘one-party’ states and autocratic regimes. The challenges for science communication and its practitioners in this scenario are immense and posit an imperative to transform its practices and framework, as a concerted strategy for the advancement of democratic principles and civic citizenship. African Gong advocates for a ‘societal literacy’ approach to science public engagement in Africa, in a two-way dynamic that highlights the role of scientists. Furthermore, for African scientists and researchers, routine engagement with society can also create a more critically engaged public, necessary for navigating science advice in a ‘post-normal science’ era. Current research highlights how science communication practices can reproduce social hierarchies. Thus, if we want to be credible to the public and engender the ‘common good’ of democratic principles, we need to fundamentally reimagine how we work, within an ethos of social justice. The prospects for upscaling science communication as an effective mechanism for engendering cohesive democratic societies and active civic citizenship in Africa will be discussed.

Bio

Elizabeth Rasekoala is the President of African Gong – The Pan-African Network for the Popularization of Science & Technology and Science Communication, which aims to advance the public learning and understanding of science (PLUS), scientific outreach and scientific literacy on the African continent (www.africangong.org). She is a member of the African Union Commission (AUC) Monitoring and Evaluation (M&E) Committee for the ten-year ‘Science, Technology and Innovation Strategy for Africa’ (STISA-2024). Dr Rasekoala, with a professional background in chemical engineering and industry internationally, has championed, advocated, researched, presented and written widely on public innovation and transformative development through advancing diversity, sociocultural inclusion and gender equality issues in science communication and science, technology, engineering and mathematics (STEM) education, skills and entrepreneurship development. She has provided extensive advisory and consultancy expertise to various governments, institutions and multilateral international organisations over the past 15 years, including the European Commission, the UN Commission on Human Rights, the UN Economic Commission for Africa (UNECA), UNESCO, the African Union Commission (AUC) and the African Development Bank.

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**Where is the intellectual home of science communication? A critique of relations of power in science communication according to perspectives of academics at the University of Limpopo**

(Session 11: Wednesday, 7 November 2018)

Abstract

The field of science communication is relatively new to scientists and journalists and arguments about the intellectual home of science communication arise amongst intellectuals. The struggles of identifying the intellectual home of science communication are borne within a socio-historical context in South Africa, and inextricably linked to ruling powers, dominant discourses and 'regimes of truth'. The arguments and perspectives about the practice science communication apply to various levels of South African society, and could hinder or catalyse national development. In order to catalyse development, there is a need to empower people to ask the right critical questions about science, technology and innovations and to ultimately critique the goal of science communication. The aim of this paper is to present the conceptualisations of science communication and its 'intellectual home', according to the perspectives of the academics – with a focus on the relations of power that are contingent. The paper draws on theoretical frameworks of Michel Foucault (1926 - 1984) on the critique of knowledge and power and Karl Popper (1902-1994) on the nature of empiricism. A Foucauldian framework of discourse analysis is employed to identify the relations of power, competing discourses and contingencies. The objectives of this paper are to evaluate, through the empirical data presented, whether academics in the social sciences (and/or humanities) and the natural sciences employ the dialogue model of science communication or not; instead of the deficit model. Furthermore, this paper highlights the arguments and experiences of communicating science by academics in a unique geographical setting such as the University of Limpopo.

Bio

Molefeng Isaac Riba is a part-time lecturer of communication studies at the University of Limpopo. He lectures on health communication, marketing communication, events management, public relations, advertising management and communication theory at undergraduate and honours levels. He holds a BA (Honours) in communication studies. He is currently completing his dissertation in health communication at the same university. He has worked on science communication projects at the University of Limpopo since the beginning of 2017.

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**Communicating science in polarised environments**

(Session 5: Tuesday, 6 November 2018)

Abstract

It is easier than ever before for citizens to get information on any topic with just a few keystrokes. At the same time, politically divided news environments on television and online have created a world that allows us to live in our own filter bubbles in which the same (scientific) information means very different things to different audiences. What are the effects of these new news environments on modern democracies? Why are citizens in many countries less equipped than ever to debate controversial issues with each other in a civil fashion? And what does all of this mean for the proliferation of fake news and misinformation? This talk will explore what the latest research tells us about causes and possible solutions.

Post-conference workshop: Professor Dietram Scheufele is one of the presenters at the post-conference workshop on Thursday, 8 November 2018 where he will talk about “The science behind science communication: What methods do we need for emerging research agendas?”

Bio

Dietram A. Scheufele is the John E. Ross Professor in Science Communication and Vilas Distinguished Achievement Professor at the University of Wisconsin-Madison and in the Morgridge Institute for Research. Scheufele's research focuses on public attitudes and policy dynamics surrounding emerging science. He is a member of the German National Academy of Science and Engineering, and an elected fellow of the American Association for the Advancement of Science, the International Communication Association, and the Wisconsin Academy of Sciences, Arts & Letters. Scheufele has been a tenured faculty member at Cornell University and has held fellowships or visiting appointments at Harvard University, the University of Pennsylvania, the Technische Universität Dresden, and the Ludwig-Maximilians-Universität München. His consulting experience includes work for the Public Broadcasting System, the World Health Organization, and the World Bank.

Barbara Schmid

University of Cape Town

Email: barbara.schmid@uct.ac.za**Science shops in South Africa – the experience of the UCT Knowledge Co-Op**
(Session 12: Wednesday, 7 November 2018)**Abstract**

At UCT, we have adapted the science shop model into the Knowledge Co-op. During the past eight years, procedures and approaches were developed through facilitating 180 student projects, drawing on dissertation research and compulsory community service. While the experience of science shops in the global North was helpful, our local context does offer some challenges and also opportunities. The presentation will reflect on these.

Bio

Barbara Schmid was appointed in August 2010 as project manager for the UCT Knowledge Co-op – a local adaptation of the science shop model. She finds relevant expertise within UCT to address research needs of community groups in a collaborative process and manages the projects. In this aspect she is part of a team challenging the way research is understood and done at UCT. Her previous work experience includes spells as lecturer/research co-ordinator at UCT, teaching mathematics and physical science at high school, and running a community centre in the Cape Flats.

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**Community involvement in developing an integrated and inclusive science communication strategy: Results from an adherence communication study in Mpumalanga and Ekurhuleni**

(Session 11: Wednesday, 7 November 2018)

Abstract

Adherence communication is considered to be one of the valuable tools through which adherence to antiretroviral treatment (ART) can be enabled and facilitated. However, despite a plethora of communication programmes about HIV, AIDS and ART, achievement of adherence and positive health outcomes for people living with HIV (PLHIV) continues to be elusive in South African rural communities. This is partly because developers and communicators often design communication campaigns without having involved targeted communities to enhance uptake of such communication. This paper discusses the dynamics and value of involving the target community in developing an ART adherence communication strategy. Drawing from data collected among PLHIV and their surrounding communities in Mpumalanga and Ekurhuleni the paper shows participants' perspectives on preferred communication tools and information sharing practices in their communities. The paper also discusses perspectives on the significance of message framing in developing a communication programme. In conclusion, a proposed model of an integrated and inclusive science communication strategy for vulnerable communities is presented.

Bio

Konosoang Sobane is a science communication and health communication specialist at the Human Sciences Research Council (HSRC). She holds a PhD in linguistics from Stellenbosch University, with a specialisation in healthcare communication, and a postgraduate diploma in science communication. Her research interests are on applied linguistics and science communication. She is also a policy brief coordinator at the HSRC and does work on communicating science for different publics, including policy actors. She has recently completed a PEPFAR-funded project titled: "The communication needs and information sharing practices of PLHIV, looking at the potential use of M-health platforms for adherence communication". Prior to the HSRC, she was a linguistics lecturer for nine years at the National University of Lesotho, teaching courses in literacy development, as well as academic literacy.

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Early career researchers learning to engage with the public(s): a productive symbiosis

(Session 9: Wednesday, 7 November 2018)

Abstract

In a democracy, individuals can freely participate in the societies they inhabit. To participate in public debates around science, citizens need to be aware of current developments in science. The field of science communication was thus originally motivated by a commitment to democracy. Besides the advantages public engagement has for citizens' scientific awareness, there are also important benefits for researcher-communicators, such as improved quality and impact of their research. Yet researchers' participation in public engagement remains low, globally and locally. The low levels of engagement mean that many researchers miss out on an important facet of their development into well-rounded scholars. Training and exposure to public engagement can help persuade researchers to make this a professional habit. However, such training opportunities in South African universities are still scarce. This paper describes an innovative blended short course that offers postgraduate science students the opportunity to learn about public engagement, and to practice writing for different audiences. I unpack the course's approach, show examples from student writing and reflect on their experiences of engaging in these writing tasks. I show how exposing students to public engagement at the postgraduate level adds quality to their development into proficient communicators of research, and well-rounded graduates. Engagement between scientists and the public undoubtedly contributes to citizens' scientific awareness, but an equally important outcome is how this practice can improve researchers' own command of their topics.

Bio

Mathilde van der Merwe is a senior lecturer in the Language Development Group in CHED (Centre for Higher Education Development) at the University of Cape Town. She combines her background in the natural sciences (PhD genetics) and an interest in writing to design writing interventions for undergraduate and postgraduate students in the sciences. Amongst these is a blended postgraduate short course aimed at developing students' research writing for multiple audiences – from specialist academic to wider public(s). Her research career changed from molecular biology to education, with publications ranging from differential gene expression and abalone cell culture, to models for teaching laboratory report writing and pedagogies of doctoral writing for publication. Her current research interests are academic (including visual) literacies in the sciences and the interplay between writing in public and academic spaces, at the postgraduate level.

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**Open science and the online communications of the anti-vaccination movement**

(Session 3: Monday, 5 November 2018)

Abstract

There is persistent pressure on science to be more open. But for all the fervour, there has been scant attention paid to the full gamut of its potential. These potentials are, in many cases, linked to open access to the formal communications of science made possible by digitisation, the internet and new communication technologies. Traditional channels of communication are no longer the gatekeepers to the public's understanding of science. Instead, new science communication channels are proliferating in a society that is increasingly online and networked, and it is therefore reasonable to expect attentive non-scientific publics to access the communications of science. Thus, open science introduces new trajectories in the communication of science that are best understood with reference to flows of information in communication networks that define the network society. It is the direct access to the communications of science by non-scientists that this paper examines to answer the question 'What are the potentials of open science in the communication of science?' It does so by investigating the presence and use of open access journal articles in the online communications of a specific non-scientific community: the anti-vaccination movement. Findings show that the anti-vaccination movement is accessing and using open access journal articles in its online communications. Online social networks allow the movement to amplify its minority position by being selective in terms of the vaccine science it feeds into its online communication networks, and by being highly active without engaging closely with the scientific knowledge at its disposal. In part, the amplification was found to be attributable to the presence of different types, as well as a disproportionate number of intermediaries. The consequences of the anti-vaccination's use of open access journal articles in its online communications is the production and amplification of uncertainty around the safety of vaccinations.

Bio

François is a researcher in the fields of scholarly communication, higher education studies and open data. He is a doctoral candidate in science communication at the Centre for Research on Evaluation, Science and Technology (CREST), Stellenbosch University. Selected recent publications include the book chapter 'African universities and connectedness in the information age' (in *Castells in Africa: Universities and Development*, African Minds) and the journal articles 'The engaged university and the specificity of place' (*Development Southern Africa*) and *African university presses and the institutional logic of the knowledge commons* (*Learned Publishing*). He is the co-chair of the Open Data Research Symposium and editor of the series *The Social Dynamics of Open Data*. In addition to his academic interests, he is a consulting researcher to SBC4D, managing director of COMPRESS.dsl, and editor and trustee of the open access monograph publisher African Minds.

