

Meeting report

Communicating sustainability: Enhancing research impact

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On the 6th of November 2024, a communication skills workshop for promoting sustainable solutions was held for doctoral students and early career researchers. The event provided an opportunity to tackle environmental challenges through interdisciplinary collaboration and teamwork, focusing on innovative ways to communicate solutions.

The workshop aimed to enhance participants' communication and research-pitching skills while fostering engagement, meaningful discussions, and networking opportunities within the environmental sustainability community.

The session began with **Dr Mario Moustras** from the RSC's Management Interest Group inviting participants to introduce themselves and share their expectations for the workshop.

Dr Moustras then shared practical tips on effectively communicating research to non-technical audiences. His guidance included:

- **Start with the big picture:** Explain why the research matters and its broader importance.
- **Use common analogies:** Break down complex concepts by connecting them to everyday experiences.
- **Focus on benefits:** Highlight practical outcomes and impacts.
- **Explain essential terms:** Avoid technical jargon to ensure accessibility.
- **Tell a story:** Sharing narratives that illustrate how the research solves real-world problems.
- **Show human impact:** Discuss tangible benefits like improved health, environmental gains, and quality of life enhancements.
- **Use visuals and scale comparisons:** Employing graphics or analogies to convey complex data in relatable terms.
- **Encourage personal connection:** Link the research to actions individuals can take.

Dr Moustras illustrated each tip with sustainability-related examples, ensuring relevance and clarity for participants.

Guest speakers

During the event, we had the privilege of hearing from two prominent researchers, **Dr Gbemi Oluleye** and **Dr Paul Ferguson**, who shared insights into their sustainability-focused careers and research.

Dr Oluleye, a lecturer at the Grantham Institute, leads groundbreaking research on Green Industrial Interventions, developing optimisation-based decision-support frameworks to evaluate and enhance the economic viability of sustainable solutions for decarbonising energy-intensive industries.

Dr Ferguson, a Principal Scientist at AstraZeneca, focuses on integrating sustainability into analytical methods for therapeutic drug development. His work includes identifying 'greenest' measurement techniques, alternative sample preparation methods, and environmentally friendly approaches to analytical processes.

Both speakers shared their career journeys, highlighting how they transitioned into sustainability roles. They discussed the importance of communication skills, reflecting on their personal experiences, and tied their stories to the tips shared earlier by Dr Moustras. They openly shared examples of their "epic fails" when communicating sustainability, including recent experiences, reassuring participants that even experienced professionals face challenges. This emphasised the value of workshops like this to build resilience and improve communication skills.

Case studies activity

Dr Moustras facilitated group discussions during the workshop, organising participants into groups of five to brainstorm solutions to real-world environmental challenges. Each group addressed one of several case studies, showcasing how chemistry can drive sustainable innovations.

Case studies

- **Improving inner-city air quality:** Airborne pollution from vehicle emissions poses significant health risks, particularly for individuals with respiratory issues. Efforts like the EU's Air Quality Directive and London's Ultra-Low Emission Zone aim to tackle this, requiring standardised monitoring systems to ensure effectiveness.
- **Protecting water resources:** Water pollution remains a critical concern for human health and the environment. The EU Water Framework Directive prioritises cleaner rivers, lakes, and groundwater, aiming to enforce legal limits on pollutants to improve water quality.
- **Mapping microplastic pollution:** A 2022 citizen science study in Montana's Gallatin River found microplastics in 57% of samples, highlighting the pervasive nature of this issue even in remote areas. This underscores the urgency for global action against plastic pollution.¹
- **End-of-life textiles:** Approximately 5 million tonnes of clothing are discarded annually in the EU, with only 1% recycled into new garments. Innovations like Renewcell transform textile waste into biodegradable raw materials, offering a sustainable path forward.²
- **Fertiliser efficiency enhancers:** With the global population projected to reach 10.9 billion by 2100, sustainable food production is vital. Only 50% of nitrogen fertilisers are absorbed by crops, with the rest causing environmental harm. Nitrogen stabilisers, such as urease and nitrification inhibitors, can significantly reduce these losses.³
- **Lignin as a renewable resource:** Lignin, a by-product of the paper industry, is currently burned for energy. However, it holds potential as a renewable resource for producing bio-based products, offering a sustainable alternative to waste.⁴

Participants were then allowed to select an idea to work on, including new ideas unrelated to the provided case studies.

Once their idea or case study was chosen, each group engaged in a structured problem-solving activity:

1. **Identify the target user:** Define the specific group of people or organisations the research, technology, or service would benefit. This involved understanding the shared characteristics, needs, and preferences of the target group.
2. **Define the problem:** Pinpoint the primary challenge or issue faced by the target user.
3. **Analyse existing solutions:** Explore current alternatives or approaches the target user is utilising, including competitor research and accessible technologies or services.
4. **Articulate the value proposition:** Highlight what makes their proposed research, technology, or service unique and how it offers an advantage over existing solutions.
5. **Describe the solution:** Detail the features, functions, and benefits of the proposed idea or innovation.
6. **Identify key metrics:** Establish the key indicators or measures of success for the proposed solution.



Figure 1. Participants presenting their ideas for solutions to one of the sustainability challenges selected for the workshop.

Through this collaborative process, groups analysed challenges, identified knowledge gaps, and developed potential solutions. Innovative ideas

ranged from public awareness campaigns to advanced technological solutions, demonstrating the value of interdisciplinary teamwork.

The exercise not only fostered creativity but also emphasised the importance of collaboration in addressing environmental issues. By combining diverse expertise, participants gained a deeper understanding of the complexity of sustainability challenges and learned practical tools for interdisciplinary problem-solving. This activity also inspired ideas for future research and potential partnerships,

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Conclusions

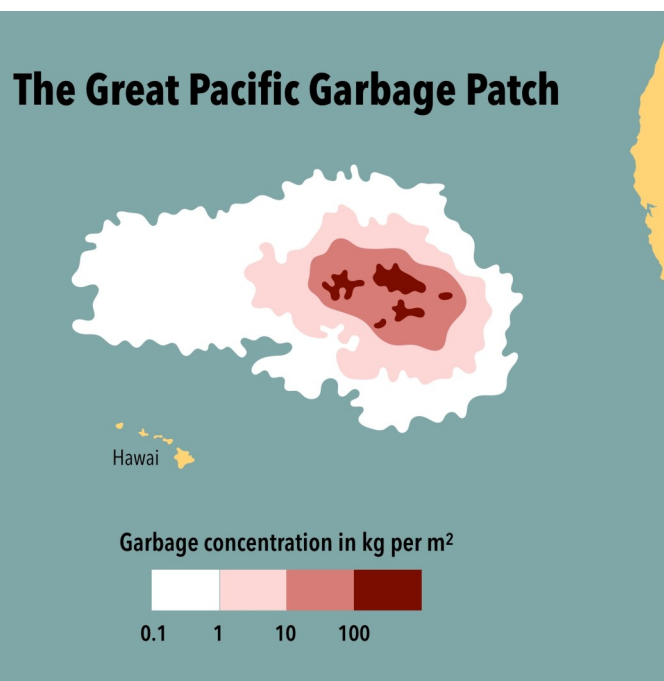
Overall, the workshop was highly engaging and well-received, sparking meaningful discussions among participants on how to apply the skills and insights gained to their own research. Many expressed their enthusiasm about integrating communication strategies, interdisciplinary approaches, and feedback into their work, highlighting the workshop’s practical value in enhancing research impact and fostering collaboration.

Acknowledgements

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Mapping plastic contamination in the Great Pacific Garbage Patch.

reinforcing the role of chemistry as a central driver of impactful solutions.

Pitch presentations

Finally, participants worked in teams to prepare a 5-minute pitch tailored to their target audience, with each team member presenting a portion of the project. The presentations were reviewed by Dr Moustras, Dr **Marcia Philbin**, Chair of the Management Interest Group, and the guest speakers, who provided constructive feedback (**Figure 1**). The feedback was well-received, with participants expressing enthusiasm for integrating the suggestions into their future communication efforts. This activity not only strengthened their pitching