

Soapbox Science: Impact on Speakers

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Foreword

More than 2,700 women and non-binary people in science have stepped onto our soapboxes since we decided we needed to do something to address stereotypes and biases in Science, Technology, Engineering, Mathematics and Medicine (STEMM). To us, this number is mind blowing, and certainly not something we would have predicted a decade ago, when we first tried to convince people that there was a need, and a place, for an initiative like Soapbox Science.

Numbers are, however, far from being the story here: this report highlights the human impacts of the network we initiated, and illustrates how public engagement has the potential to make a difference to scientists' careers not only by raising their profile and widening the reach of their work, but also by extending their professional networks and improving their communication skills.

Although born in a research institute in London, Soapbox Science has resonated with women and non-binary researchers globally, demonstrating how the challenges faced by these groups, and barriers to increased diversity in STEMM, are not shaped by geography. From Africa to Australasia, Europe and the Americas, the testimonies in this report tell how local communities of under-represented groups in STEMM can boost confidence, promote profiles, reduce feelings of isolation and support career progression. These stories also illustrate how organically grown initiatives provide a powerful way to elevate the voice of women and non-binary scientists and spearhead change, representing an important complement to top-down approaches.

To us, Soapbox Science has always been the best antidote to the countless examples of gendered biases and stereotypes we have witnessed through our careers. Knowing that Soapbox Science has been an effective antidote for others makes us proud of our contribution in establishing this initiative as a sustainable, borderless one. We hope that many more women and non-binary scientists will be tempted to share their passion for their work with the general public in unexpected places, challenging perceptions of who scientists are, providing role models and helping to create a world where any young person - no matter their background, gender or race - can see themselves advancing knowledge and pushing the frontiers of what we understand about our world.

Nathalie & Seirian
Soapbox Science Co-founders

Contents

| | |
|----------------------------------|----|
| Introducing Soapbox Science..... | 4 |
| Soapbox Science in Numbers..... | 7 |
| Short-term Impact | 9 |
| Long-term Impact | 12 |
| Case Studies | 21 |
| Conclusion..... | 32 |

Introducing Soapbox Science

Soapbox Science is a public outreach initiative that showcases the work of women and non-binary researchers, while making science fun and accessible. Events happen in public spaces, where researchers take to their soapboxes and enthrall the passers-by with informal, hands-on presentations about the cutting-edge research happening in their cities. They prepare eye-catching props, invite questions and heckles from the audience, and share their excitement for their work, all while challenging stereotypes about who scientists are and what scientists do.

Since its inception over a decade ago, Soapbox Science has grown internationally, with dozens of volunteer-led organising teams now established across 15 countries. These teams, who primarily include women and non-binary people in science, handle all the logistics of organising annual Soapbox Science events in their regions and build a passionate community of local researchers, who value public engagement and diversity in Science, Technology, Engineering, Maths & Medicine (STEMM).



A platform for women and non-binary people in STEMM

Created in 2011 in London by Prof Nathalie Pettoelli and Prof Seirian Sumner, Soapbox Science was set up in response to the paucity of women and non-binary people in STEMM, especially higher up the career ladder¹. Thirteen years on, women and non-binary people still only make up 26% of the STEMM workforce in the UK and only 27% of STEMM graduates². Soapbox Science aims to address this by increasing the visibility of these underrepresented groups of researchers, giving them a literal platform from which to speak to the public, and by promoting them and their research through press and media. This approach aims to contribute towards changing public perceptions around who can be a scientist and what scientists do. This is especially important for young people whose career goals have been shown to be impacted by STEMM stereotypes³.

¹ CaSE (2014) "Improving Diversity in STEM" <https://sciencecampaign.org.uk/app/uploads/2023/03/Improving-Diversity-in-STEM-2014.pdf>

² STEM WOMEN (2023) "Women In STEM Statistics: Progress and Challenges" <https://www.stemwomen.com/women-in-stem-statistics-progress-and-challenges>

³ Garriott et al (2016) "STEM Stereotypes and High School Students' Math/Science Career Goals" <https://journals.sagepub.com/doi/abs/10.1177/1069072716665825>

What does a Soapbox Science event look like?

The format for Soapbox Science events was inspired by the world famous, historic arena for public debate – Hyde Park’s Speaker’s Corner. Speaker’s Corner revolutionised democracy and freedom of speech in Victorian Britain, and helped lay the foundations of modern-day open democracy.

Carrying forward this spirit of open debate, 12 speakers take part in each event and stand on boxes in busy streets, shopping centres, beaches, parks, or any public space with a high footfall and an unsuspecting audience. Speakers are trained in how to engage with an audience, and how to capture people’s attention in a bustling arena of people who are not planning to attend a science event on the day. The audience is free to move between the speakers and find topics that interest them.



The impact of Soapbox Science on speakers

To assess the impact of Soapbox Science on audience members, we have developed an evaluation framework, which consists of questionnaires and observations recorded by volunteers at events. Our surveys show that our events are well received, with 96% of our attendees rating Soapbox Science as enjoyable or extremely enjoyable and 43% of attendees reporting that they rarely or never attend science events.

However, as one of the core aims of the project is to highlight and promote the careers of women and non-binary people in STEMM, it is also important to measure the impact that Soapbox Science has had on the people who take part, specifically speakers and local organising team members. This is the focus of this report, which collates information gathered through (i) feedback from speakers at events; (ii) questionnaires sent to past speakers with a focus on long-term impacts; and (iii) a series of seven case studies of people who have had a long-standing relationship with Soapbox Science.

The format of Soapbox Science means that we hope the project has the potential to have a positive impact on speakers and organisers in the following ways:



Community and Network

Research suggests that participating in networking has tangible benefits for the careers of the women involved⁴. At Soapbox Science events, speakers meet other researchers from different fields and different institutions. They take part in training workshops and many are involved in press and media opportunities alongside local organisers and fellow speakers. Speakers are selected to represent different career stages so that PhD students and early career researchers are connected with Senior Researchers and Professors who can act as role models.

Each city that hosts an event will also have an event organising team, who are at the centre of the community of women and non-binary scientists interested in science communication. As events become established and run for several years, the alumni community in that city grows. Through our feedback surveys we want to determine whether Soapbox Science speakers value this community building and the networks that they have made.



Visibility

Soapbox Science offers women and non-binary people a platform to showcase their research to the public and to build their profile. Media coverage of events has reached millions of people and speakers are invited to write blogs and take part in [interviews with the press](#). This is important in a media climate where male experts tend to be prioritised, for example, during the COVID-19 Pandemic when women's voices were often overlooked in the media, despite contributing equally to the research.⁵ We hope that taking part in Soapbox Science has

helped speakers to become more visible both inside and outside of their institutions, and that the public speaking and media experience can be a valuable contribution to job applications, particularly for early career researchers who may not have previously had much experience or many opportunities in this area.



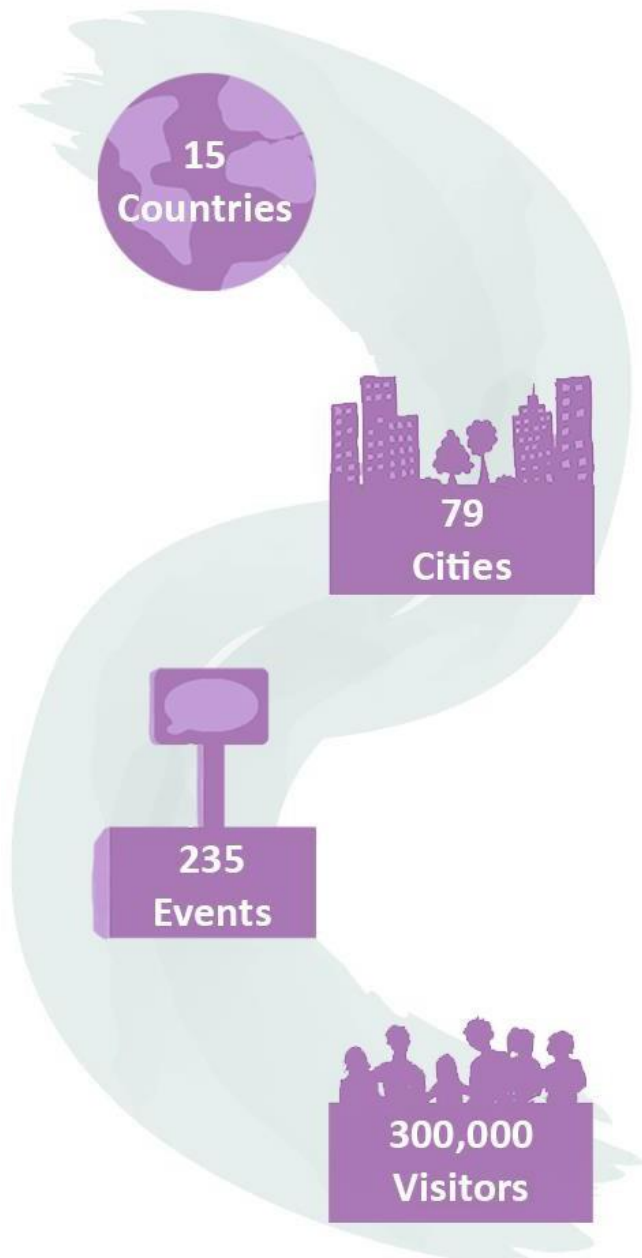
Training

Soapbox Science offers training workshops for speakers and local organisers. Workshops for speakers cover 'how to engage with the audience' and top tips on preparing for a presentation, including the use of props and storytelling. Local organisers are trained in every aspect of event organization, from fundraising, to securing a venue and logistics, to engaging with press and media. We hope that these bespoke training programmes are valuable for the career progression of participants; giving them the tools to both participate with future public engagement initiatives and to organise events for themselves.

⁴ Stamm, J. (2010) "Women in Science – Why Networking Matters" <https://www.cambridge.org/core/journals/european-review/article/abs/women-in-science-why-networking-matters/C08B9525E7F09682308AF18788A861B7>

⁵ Kassova, L. (2020) "The Missing Perspectives of Women in COVID-19 News" <https://www.iwfmf.org/wp-content/uploads/2020/09/2020.09.16-FULL-COVID-REPORT.pdf>

Soapbox Science in Numbers



The inaugural Soapbox Science event was held in London in 2011. Twelve speakers were invited to take part, representing a broad range of scientific disciplines and career stages. The format was a hit for the speakers and the audience, and the event became an annual tradition on the Southbank, with an open call for speakers being used from 2013.

After three successful years in London, researchers from around the UK and Ireland approached Profs Pettoirelli and Sumner to ask for help to set up Soapbox Science events in their own cities. Hoping to make Soapbox Science flexible and reproducible, a training programme for local organisers was created and four cities hosted events in 2014 - Bristol, Dublin, London and Swansea. This started the snowball of new event teams and locations, and up to December 2023 there have been a total of **235** Soapbox Science events, held in **79** cities in **15** countries.

Every event keeps the same format and ethos of the first Soapbox Science event in 2011 and these events have engaged more than **300,000** members of the public with STEMM research happening in their cities, with more than 50% of attendees having just stumbled on the event without any prior plan to visit a science event that day.



Each Soapbox Science event is devised and delivered by an amazing, dedicated community of event organisers, speakers and volunteers. Local organising team members, many of whom are full-time STEMM researchers, sign up to establish events in new locations. They fundraise, handle all event logistics and recruit and train speakers and volunteers. Local organising teams generally consist of between three and five people, and up to December 2023 a total of **245** people have accessed Soapbox Science’s online local organiser training. Many local organisers have been Soapbox Science speakers at previous events and have subsequently moved to new cities where they have started events themselves.

To date, **2,787** speakers have taken part in Soapbox Science. Selected through an open call, they come from a range of disciplines in STEMM and cover career stages from PhD students to Professors, as well as researchers in industry. Speakers attend a training workshop, which covers the format of a Soapbox Science event, what to expect, and offers top tips and advice for engaging the public with science in an informal setting.

Soapbox Science speakers are supported on the event day by a team of 15–20 volunteers who help to manage props, gather a crowd and conduct the evaluation. To date, over **3,000** volunteers have helped at Soapbox Science events. Many volunteers are Undergraduate or Master’s students who want to learn more about science communication or want to meet other women and non-binary researchers higher up the career ladder. Some volunteers are colleagues of the speakers who have come to support the presentations, and others are interested in presenting but don’t yet feel confident enough to apply.



For more detailed information about Soapbox Science in numbers, please see our [10 Year Report](#).

Short-term Impact

Soapbox Science is a volunteer-driven project and we therefore want to make sure that all participants have a rewarding and valuable experience. During and directly after each event, Soapbox Science local organisers collect anecdotal feedback from speakers and volunteers to help improve future events and to gauge the short-term impact of Soapbox Science. This usually takes the form of informal discussions in-person or by asking for feedback to be submitted via email post-event. Speakers and volunteers are also invited to write blogs for the website where they can explore their experience of the day in more depth.



This process is in addition to formal audience evaluation, which is conducted by volunteers on the event day through questionnaires, footfall counts and dwell times, and which is amalgamated into standardised [evaluation reports](#) for each event.

As this feedback is used to assess the success of individual events and is often collected verbally and informally, there is no requirement for local organisers to share all feedback with Soapbox Science or to provide a record of every piece of feedback from speakers or volunteers. We have, however, collected many quotes throughout the years, through post-event emails, the Soapbox Science blog, and discussions with local teams.

Looking at this anecdotal feedback, there are three points that speakers reference often in relation to their experience of the event day:



- Stimulating a speaker's own thinking about their research

Many speakers have mentioned that the questions they received from the audience have changed the way they think about their own research, or led them in unexpected directions. Some speakers are surprised at the topics that are most interesting to the public and adapted their talks while on the Soapbox to suit the audience they had.

The experience was heart-warming and energising. Not only does it feel good to get out there and think about how to make one's science relevant to all but engaging with such a wide range of curious people stimulates one's own thinking.

I talked about depression, ways to detect it, and seek for help. I got a lot of ideas from the audience on the possible causes of the rising incidence of depression in Nigeria. It was also an opportunity to show people how good female scientists can be and debunk the negative stereotypes about women in science.

There were some great questions and it was highly enjoyable! Many thanks again, I have really enjoyed the Soapbox Science journey (I'm sure it'll feature in my future "memorable" moments).

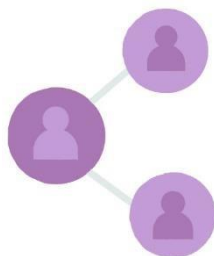


- Boosting speakers' confidence

Speakers are often nervous about stepping onto their soapbox and share this with the organisers before the event, but almost all have a great time and feel much more confident after their presentations. Feedback shows that some value the experience of being taken out of their comfort zone and presenting in a different environment to ones they are used to (e.g. lecture theatre).

It has been extremely fun and taken me out of my comfort zone.

I would love to speak at a Soapbox Science event again and will probably join others in organising one at any location close to me. It boosted my confidence as a researcher and as a speaker.



- Networking and building a community

Speakers enjoyed getting to know other researchers and building their network in science as well as in the local community. Soapbox Science events showcase a range of research from STEMM disciplines and speakers have remarked that they appreciate the opportunity to meet likeminded researchers from other fields and institutions who they would not normally meet, which can help reduce feelings of isolation and alienation.

Well done to all the other speakers too, I really enjoyed the different talks and the extraordinary research being done in the region.

I felt like all the speakers that day had ignited enthusiasm, awareness, and scientific understanding in many people. Everyone seemed to be buzzing with the success of the event.

I also got to network with other female scientists who I now communicate with regularly.

I was confronted with lack of diversity in my research institutions, which still triggers feelings of alienation. The competitiveness, pressure and stress present on a day-to-day basis distance me from the central values of my hometown: mutual support, sharing, slow pacing. Soapbox Science reconciled these two worlds. Speaking at the event gave me the opportunity to come back to my hometown and share with the people I love the science I love. I hope I shared with them the passion for what I do and the excitement that drives one forward despite far-from-ideal circumstances. I hope I made it clear how vast the cosmos is, and how there is space for everyone!

Volunteers at events assist Soapbox Science speakers with their presentations, chat to the audience and conduct evaluation. From post-event feedback from volunteers about their experience, the two things mentioned most often were:

- Learning about science communication
- Meeting women and non-binary people in science who could be role models



Volunteering was great! I simultaneously got the chance to listen to many enthusiastic scientists talk about their research and managed to get strangers interested in science. And they realised that there are so many great female scientists around!

A newbie in science communication, volunteering for Soapbox Science was a great way to gain insights into how science communication works while learning about current exciting research and making an actual contribution.

Long-term Impact

To measure the longer-term impact on speakers, a survey was conducted in 2018 that asked 357 past speakers a series of 41 questions, pertaining to speakers' participation in Soapbox Science and to career related activities.

Key results of this survey showed that almost half of respondents (44%) reported that their participation in Soapbox Science had a high influence on their volunteering for further public talks. Furthermore, 97% of those who applied for new jobs or promotions mentioned Soapbox Science in their applications. A majority (57%) of these speakers believed that Soapbox Science likely had a moderate (37%) or strong (20%) influence on their promotion.⁶

The survey also established that participation in Soapbox Science positively impacted the speakers' self-reported confidence in public speaking, within their workplace, and withing their wider academic network.



Figure 1: Following participation in Soapbox Science, speakers' confidence shows a significant increase a) in public speaking, b) at work, and c) in networking. Confidence is rated on a 5-point Likert scale where 0 = no confidence and 5 = very high confidence; 356

Full results of this survey were [published in 2021](#).

⁶ Boakes E.H., Pettorelli N. & Sumner S. (2021) "Giving Women a Public Voice Helps Tackle Gender Inequality in Science". Soapbox Science Report 1, 20pp. <http://soapboxscience.org/wp-content/uploads/2021/02/Soapbox-Science-report-February-2021-1.pdf>

We also wanted to capture anecdotal feedback about the impact Soapbox Science has had, especially to understand unexpected impacts and to record impacts that do not pertain to career progression. Every section of the questionnaire therefore ended with an optional ‘additional comments’ box. Responses revealed that many speakers had experiences of Soapbox Science that we had not predicted or factored into our quantitative analysis:

Motivation

It helped motivate me to write my thesis when I was at a low point. Outreach reminds me why I do what I do, because I have to convince other people that what I do is cool. And sometimes when I've forgotten that, it really helps to do some outreach to bring back my enthusiasm.

Organisation

After being a speaker, I am now one of the organisers of the local Soapbox Science, and I wish to continue organising it as long as I can. The experience of organising this has motivated me to actively organise conferences and other networking and public engagement activities.

Visibility

Soapbox science extended my network of colleagues and so opened me to being invited to more events. My willingness to join in also helped let people know that public speaking was something I was interested in. It helped me get to know some of the women in my workplace better.

Wellbeing

The main thing that Soapbox Science has provided is a network of women that I can relate to. Being a female academic can be isolating, and this is an amazing thing to have. So, even though there may be no direct benefits to my career, there are indirect benefits in terms of wellbeing, that are difficult to capture in number of talks given, promotion, etc.

New experiences

I already did quite a bit of public talks and engagement before, so maybe not had as much effect on developing confidence as in other people with less experience. But the style was different than what I had done before so that was a good experience for confidence of talking directly to any members of the public. It was also great to talk to the other speakers about what they were doing and meet them. So, although my scores might not reflect change, I thought it was a really good thing to do.

Funding

The event had huge media coverage and thanks to the great efforts of the media and organizers the particular case of a worm that eats plastic went viral and the main researcher received an offer from an international company to further fund their research for a year. Something like this does not happen every day, and without the great support and framework of Soapbox Science it would not have been possible.

We loved reading these unexpected responses and understanding how Soapbox Science affected speakers. To collect more of these anecdotes, we sent a one-question follow-up survey in 2023 which asked people who felt that Soapbox Science **did** have an impact on their career progression or personal wellbeing to give us more details about this. This open-ended question was sent to all speakers who signed up to our mailing list who took part in events up to 2019 (the last year before Soapbox Science had a break from live events during the COVID-19 pandemic; n=204).

The question asked was:

How has participating in Soapbox Science impacted your professional career or personal development?

All responses were anonymous, and we received 59 responses to this question, of which 54 provided the additional information requested and the remaining five replied with 'Yes'.

The respondents listed 10 main impacts of taking part in Soapbox Science in their feedback (in order of most commonly referenced):

- 1. Gaining confidence (37)**
- 2. Impacts on career progression (17)**
- 3. Gaining motivation and opportunities to do more science engagement work (16)**
- 4. Making new professional connections or friendships (11)**
- 5. Inspiring or changing feelings about one's own research (10)**
- 6. Inspiring feelings about the importance of talking to new audiences (9)**
- 7. Having fun and boosting motivation (8)**
- 8. Helping with teaching or supervision of students (4)**
- 9. Becoming an organiser of Soapbox Science events (3)**
- 10. Inspiring feelings about Equality, Diversity and Inclusion (EDI) in STEMM (2)**

Gaining confidence

The most common impact, which was mentioned by almost two-thirds of respondents, was an increase in confidence in public speaking and/ or in public engagement. This was mostly reported among respondents who also noted that they were early career researchers at the time, whereas respondents who mentioned that they were already established researchers in senior positions tended not to list confidence as an impact. Some mentioned that they had been scared to take part in a public event and that Soapbox Science helped them to overcome a fear of public speaking and took them out of their comfort zone.

Soapbox Science had a major impact on my confidence in public engagement - if you can stand in the middle of a busy shopping area and talk about science then you can probably do it anywhere!

When I took part in Soapbox Science, I was an early career researcher (ECR) quite fresh out of my PhD. I had very little confidence with public speaking. Soapbox Science really gave me confidence in that sphere, and moreover, as an ECR, gave me visibility. The scheme felt really powerful for young scientists who were female or of marginalised gender identities, who are often quite invisible. It is hard for us to get established in our fields, so Soapbox Science was a really wonderful platform for starting out getting some confidence and making your work visible.

Soapbox Science has definitely had an impact on my career and my life in general. I was a speaker at an event and this gave me lots of confidence for public speaking and public engagement which is something I continue to do within my job now.

It was probably one of the most terrifying events I have taken part in, but in doing so, it helped me to overcome some of my fear and nervousness in relation to presenting.

Participating in Soapbox Science has increased my confidence hugely in both public speaking and in myself.



Impacts on career progression

The second most frequently reported impact was on career progression. This included speakers who felt that taking part in Soapbox Science helped them with a promotion, on grant applications, strengthened their CVs or opened doors to new professions including Science Communication.

It has proved invaluable in grant applications when writing about the approach to be taken for public engagement and science communication - it provides really good evidence of being active in these areas; it has given me an appetite for public engagement and science communication.

I also listed it as an example of my outreach and engagement on my recent promotion application.

It has also helped in Fellowship and job applications, demonstrating a strong personal commitment to public engagement (rather than just being involved in activities ongoing in the lab).

I went for promotion in my current role at work earlier this year and my years involved with Soapbox Science featured heavily and undoubtedly was a huge part in my success at gaining my promotion.

I regularly use it as an example of communication, overcoming challenges, innovative thinking, etc. on my CVs, website, and in interviews.

It helped me most recently get a 'dream' job in the press office for a research charity.



Gaining motivation and opportunities to do more science engagement work

Several respondents stated that they were inspired to take part in more science communication work as a result of taking part in Soapbox Science and the skills gained. Others were invited to take part in more events because they had been seen doing Soapbox Science.

I have been invited to participate in other science communication events thanks to my previous participation in Soapbox as a speaker but also as an organiser.

I have signed up for more engagement opportunities since speaking at Soapbox Science and have really developed a love for science communication. I hope that participating in events like this has increased my public visibility and will be useful to discuss in future job applications or being identified by future employers.

Being part of Soapbox Science started my interest in public engagement.

Getting involved and having this growth opportunity definitely helped me to seek out and pursue further opportunities.

I am so glad that I took part; I gained confidence in public speaking and skills to make my research more open and accessible, and enjoyed the experience so much that I have been involved in numerous other outreach events in Swansea since.

I was very happy to participate in Soapbox Science in an early stage of my career where outreach opportunities were harder to come by. I am now the head of the outreach operations for the Chemistry department at my university.

Making new professional connections or friendships

Eleven speakers said that they valued the impact that Soapbox Science had on their professional and personal relationships. Some made new friendships that lasted years and others made connections and networked with other scientists and science communicators who they would not have otherwise met.

Soapbox has led to friendships through meeting people whilst partaking in an event and subsequently being part of a Soapbox Science committee; friendships which have continued for several years.

The connections made with other female scientists at various career stages was also rewarding.

This was a wonderful journey for countless reasons. I made friends from different domains of science, became aware of ground-breaking ongoing studies of other fields. It has definitely strengthened my communication and interpersonal skills alike, broadened my horizons and made some amazing connections that I will cherish forever.

My participation connected me with other science communication professionals in the UK and in states in the United States that I didn't live in!

Inspiring or changing feelings about one's own research

Several speakers said that an impact of taking part was that they gained renewed motivation for their research topic, or learned to look at their work in a new or different way as a result of talking to the audience.

Speaking out loud about my subject reiterated why what I do is important to the world, which I tend to forget sometimes.

It gave me added motivation for my work. I also found standing on the soapbox left me with a feeling of confidence and a sense of pride in the work that I do.

Honestly, it was an incredible experience. It made me think of my current work with another mindset to try and communicate key ideas clearly. Also, it was great opportunity to communicate your science to people outside of the field and get immediate feedback to adapt talks on the fly.

It was an unforgettable experience and it made me think about my research and communication in a different way.

Responses of common public, their curiosity, questions brought me back to the point of why Soapbox Science is quintessential even in 2023 when we are exploring AI and sensor-based technologies.

Inspiring feelings about the importance of talking to new audiences

Some respondents stated that an impact of Soapbox Science was that they had a renewed understanding of the importance of communicating with different and diverse audiences and appreciated the format of the event and the experience it gave them.

I think that it was a great event and we should be doing more of that. That is talking to the (random) public who otherwise often don't ever get the chance to talk to a scientist. That is good for both sides!

Soapbox Science offered a fantastic opportunity to engage with the public and present science in an accessible way. It was a really positive and self-affirming experience. I would highly recommend it to others.

It was an interesting, informal opportunity to chat with the public about my research unlike any other setting in which I've done so. Although it hasn't really impacted my professional career or personal development, I am a big supporter of getting science out the public and so appreciated and enjoyed the opportunity to do so as part of a larger, organised community event.

I've consistently invested in communicating the research I do to the broader public across my career, and Soapbox Science was the perfect blend of values, platform, and style.

Having fun and boosting motivation

Some speakers said that taking part in Soapbox Science was a fun experience and that that was valuable and impactful for them. More senior academics tended to list this as an impact rather than career progression or personal development.

For me it was a great experience, and fun to do. Professionally - likely not much impact on my professional career as already at a senior level (Prof)

It has been fun and we don't get a lot of fun in academic jobs these years. So a morale boost.

Helping with teaching or supervision of students

Four speakers' responses detailed impacts on their ability to teach or supervise students, either by being a role model and setting an example in science communication, or by improving their teaching skills.

It allowed me to show my own students how to interact with the public, through example.

The confidence boost achieved through Soapbox Science has also translated to my teaching, where I now integrate a lot more interactive elements to benefit students at all levels.

By doing this myself I can suggest to others that they do it.

I think it encouraged junior members of my lab to do outreach, which is a good thing.



Becoming an organiser of Soapbox Science events

Three respondents went on to join Soapbox Science local organising teams or set up new events, as a result of taking part as speakers.

Being a speaker led me to joining the local committee, of which I am the current chair and has given me skills in organising and running events, managing a group of people and administrative tasks. I believe Soapbox Science is such an important event and organisation for giving women in science a voice and long may it continue.

Inspiring feelings about EDI in STEMM

Two of the respondents also listed gaining an appreciation for and understanding of the value of events that promote the work of women and non-binary people in STEMM.

The Soapbox Science experience also gave me a greater outlook to the future for women in STEMM, I believe that this kind of event should be encouraged and made more well known to the general public as a way to promote the great women scientists out there and the wonderful work and impact they have in our society!

The 10 impacts that speakers mentioned in their responses highlight the positive outcomes of community and network building, promotion of speakers' visibility and training workshops provided by Soapbox Science. We are delighted that speakers have found these activities valuable and it is encouraging to see that some speakers have experienced an extremely strong impact of taking part, for example gaining a promotion, finding a new career path or making new close friends.



There are also impacts we didn't predict, for example, that taking part in Soapbox Science has helped some speakers with their teaching or supervision responsibilities. It's also interesting to see that taking part in events has changed or strengthened some speakers' commitment to engaging with diverse audiences, and to EDI in STEMM.

Case Studies

At the heart of Soapbox Science are the teams who run the events. Local organisers establish events in new locations by assembling a team, securing funding, recruiting speakers, and handling all the logistics of the event day. Often, these organisers have been speakers at events and have subsequently moved and established teams in new cities. Many set up events which run for multiple years and inspire other teams to spring up in neighbouring cities and regions. Soapbox Science could not run without this dedicated network of teams who volunteer their time to make Soapbox Science happen and galvanise the local research community to value public engagement and EDI in STEMM. To record some of these long relationships between Soapbox Science and local organisers, and to try to capture the impacts of these collaborations, we have collected a series of case studies.

Professor Rachel Ribeiro

Organising team member → Organiser of online event → Lead organiser



Biography:

I graduated in Biological Sciences, and have a Master's in microbiology and a PhD in Medical Sciences from the Universidade do Estado do Rio de Janeiro. I have experience in Microbiology, with an emphasis on Bacteriology, working mainly on the following topics: Enterococcus, Streptococcus, Clostridioides difficile, antimicrobial resistance, one health, clinical microbiology, virulence of microorganisms and biofilm. I was a Postdoctoral Fellow in Infectious Diseases at Universidade Federal do Rio de Janeiro when I participated in Soapbox Science, working mainly with genomics and proteomics. I am currently an Associate Professor at the Department of Pathology at Universidade Federal Fluminense and project organiser outreach, Soapbox Science in Rio de Janeiro.

How did you first get involved with Soapbox Science?

I was invited by Tatiana, who was the organiser at the time, in 2019. This was the first time that all of us participated in a scientific outreach event like this, and our event was the first Soapbox Science event in Brazil. Tatiana gathered five women to help her with the organisation. We held the event in Praça Mauá, a tourist area in Rio de Janeiro; we were located in front of the Museu do Amanhã, which is one of the busiest places in the region. The event was so exciting that we decided to run it over two days. On the second day we were in a supermarket parking lot, and once again it was a success! I had never heard about Soapbox Science, but I soon became fascinated with the story and, since then, I have remained involved with the event in Rio de Janeiro.

How have you worked with Soapbox Science since then?

In 2019, we held the event, which was an absolute success. Everyone was very excited, and we started preparations for the 2020 edition, but the COVID-19 pandemic happened, and with social distancing, we were forced to cancel that year's event. In 2021, with the pandemic still ongoing, we migrated our event online, and, with all the work that was imposed on us remotely, Tatiana decided to give up organizing the event, inviting me to act as organiser from then on. We held the event remotely via YouTube, and we had a good response. As it was a remote activity, we were able to count on scientists from different parts of the country, without travel costs, which was good for expanding Soapbox Science even further across Brazil. In 2023 we held a face-to-face event, but we focused on scientists from the State of Rio de Janeiro, since we had new editions of Soapbox Science in other regions of the country. Once again, the event was held in Praça Mauá, and it was very exciting and joyful.



Have you got a favourite moment from a Soapbox Science event?

The first day of the event was on July 20, 2019. The day was beautiful in Rio de Janeiro. The background landscape was incredible. The butterflies in your stomach hoping that everything would work out. Receiving the support of our families and friends, and being so well received by the population of Rio de Janeiro was unforgettable! And from there, we knew we would be involved in Soapbox Science for a long time!



Has Soapbox Science had an impact on your professional career?

Knowing and participating in Soapbox Science made me increasingly want to empower women scientists, and this has really contributed to my career, because wherever I go and start talking about Soapbox Science I can involve more women in this fight, and also, we have managed to make some scientific collaborations. And I have the opportunity to present myself as a woman and scientist to different people, exercise a leadership position, develop my event coordination skills, and express a desire to help other women. Therefore, I volunteered to be part of the Subcommittee for Career Development Grant for Postdoctoral Women from the American Society of Microbiology, and now contribute with the experience I acquired over these years of involvement with Soapbox Science.

Dr Carolina Doran

Started local team → Made new partnerships → Career in public engagement



Biography

I have worked as a researcher for over 10 years in the field of behavioural ecology, investigating patterns of collective behaviour in social insects and fish. Throughout my research years I developed a deep interest for public engagement and a strong sense of responsibility for sharing my research outputs. I now work as a project officer at the European Citizen Science Association, crafting inclusive methodologies for wider and fair participation of society in research and innovation projects.

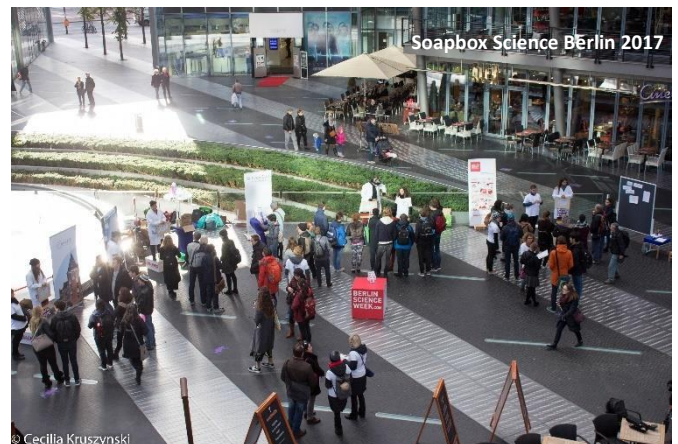
How did you first get involved with Soapbox Science?

During my PhD studies at the University of Bristol I met Prof Serian Sumner, one of the founders of Soapbox Science. I must confess that at that time I did not truly understand the need to promote women in science, I thought, as many do, that if we want equality why not promote everyone. However, I really liked the fact that Soapbox Science invades public areas and gives the opportunity to those who were not necessarily planning on attending a science event to take part, learn something new and hopefully develop enjoyment for learning. It was with this in mind I decided to start the Berlin Soapbox Science team.

Another great aspect of Soapbox Science is the training provided to speakers. In this training an introduction to concepts like implicit bias, microaggression, the leaky pipeline, to name a few, is included. Going through the research of the systemic gender inequalities in academia opened my eyes to a lot of what was happening to me and other women, trans and non-binary scientists around the world. This was an interesting moment in my life because I felt validated that I was not alone, but also very angry. Overall I think I became a better feminist and thus a better person through my process of establishing Soapbox Science Berlin.

How have you worked with Soapbox Science since then?

I started the Berlin Soapbox Science team in 2017. I recruited some colleagues and together we ran our very first event at the Tempelhofer Feld. Despite the wind and the rain we still had over 200 attendees. From then on, the team grew and we started running events in busier and more central locations. We built a strong network of sponsors and also started taking part in the Berlin Science Week, partnering with different initiatives, such as Mind the Gap and LGBTQ STEM Berlin with whom we have forged a partnership that is still ongoing. I have now stepped down from the Berlin team, and passed the baton to my teammates who are still going strong.



Have you got a favourite moment from a Soapbox Science event?

It is impossible to choose. So many memorable moments. After the first event, we went with some of the speakers to a Beyoncé event at a nearby queer club. After so much work setting up our very first event, this was the best way to relax and celebrate.

As the team grew I found like-minded friends which have become an integral part of my life. But I think the moments I will never forget were hearing from the speakers after the event and how every single one of them felt empowered.



Has Soapbox Science had an impact on your professional career?

Very quickly after starting my Soapbox Science journey I gained a deeper taste for creating spaces for sharing science. I had always enjoyed sharing my research but somehow this was different. I discovered that actually designing an event from scratch was immensely rewarding. I always received constructive criticism, praise and encouragement. Very different from what I was experiencing in my postdoc. So now as a project officer it is

my job to help create such spaces where everyone can take part in research projects and in the decisions made with their outcomes. So I can say Soapbox Science was highly influential.

Dr Ali Chauvenet



How did you first get involved with Soapbox Science?

I started as a volunteer for Soapbox Science London! When I moved to Australia for work, I decided to bring this wonderful event with me.

How have you worked with Soapbox Science since then?

When I decided to organise Soapbox Science events in Australia, I first needed to put together a cracking organising team. I was joined on the organising committee by Dr Nathalie Butt and Dr Katrina Davis to start with, and when Katrina moved to the UK, we were joined by Prof Kate Seib. Together we have organised four Soapbox Science events: Brisbane 2016, Townsville 2017, Gold Coast 2019, and Brisbane 2021. It's been a challenging journey,



between starting from scratch in a new country and figuring out where to get the material, fundraising, and adapting to a completely different lifestyle and demographics of the public here (much lower human density in Australian cities than in the UK!).

Have you got a favourite moment from a Soapbox Science event?

Like most people, I like an interactive talk, and my personal favourite was tasting edible insects developed by the CSIRO! I am also always in the crowd playing if anyone has prepared a game.

Has Soapbox Science had an impact on your professional career?

Organising Soapbox Science events has had many benefits for my career. As well as giving me a chance to develop and demonstrate leadership skills, growing my network while fundraising and meeting our fantastic speakers, it also started me on a path to become a champion of equity, diversity, and inclusion at Griffith University. In my role as Women in STEMM champion, I get to make meaningful contribution to equity, being a voice for women in the organisation, and leading new initiatives to increase their professional success.



Soapbox Science Townsville 2017

Dr Tochukwu Ozulumba



Biography

I am Tochukwu Ozulumba, a scientist with 8 years of research and scientific communication experience across the life sciences. I have a PhD in Biomaterials Science from the University of Brighton, England, and 3 years of postdoctoral research experience at the University of Virginia, Charlottesville, USA.

How did you first get involved with Soapbox Science?

I started out as a volunteer at the Soapbox Science Brighton 2017 edition. My role as a volunteer included event setup and takedown, monitoring visitor engagement and supporting speakers during their talk.





How have you worked with Soapbox Science since then?

Following my pleasant experience as a volunteer, I applied and was selected to be a Soapbox Science Brighton speaker in 2018. I talked about my PhD research which focused on using tiny particles called 'nanomaterials' to remove toxins that build up in the body during disease and injury. My presentation involved props and audience participation and was well-received by attendees, old and young alike. In addition, I was part of a team that organised Soapbox Science outreach events in Lagos, Nigeria between 2019 and 2021.

Have you got a favourite moment from a Soapbox Science event?

Presenting my research to a very enthusiastic audience on the Brighton seafront!

Has Soapbox Science had an impact on your professional career?

Volunteering with Soapbox Science in 2017 opened the doors of public engagement for me. Since then, I've taken part in several science outreach initiatives, given invited talks, and gained experience with event organisation. It's been a beautiful experience, a gift that keeps on giving.



Dr Geetha Srinivasan



Biography

I am an applied chemist with 22 years of research experience working with Council of Science and Industrial Research, India, Queen's University of Belfast and currently Principal Scientist R&D Chemistry at PETRONAS, a Fortune 500 listed Malaysian Energy Company. Recipient of several awards including from L'Oreal-UNESCO-Royal Society, three Institute of Chemical Engineering awards and Don Nicklin Medal, Rising Star in Science and Engineering Category Award UK; I am a Chartered Chemist, Chartered Scientist, Fellow of Higher Education Academy and Fellow of Royal Society of Chemistry. Aside from chemistry I am passionate about diversity and inclusivity within organisations and beyond!

How have you been involved with Soapbox Science?

Following my L’Oreal / UNESCO For Women in Science Award in 2012, I joined the network of women scientists across the country and was introduced to Soapbox Science by the founders Prof Seirian Sumner and Prof Nathalie Pettorelli. In 2014, I was an invited speaker at the Dublin event where I totally fell in love with this event as it is a great platform for women in science to communicate to the public very naturally regarding their research area.

There is no hassle of presentation slides etc., so it’s almost like talking to your next door neighbour regarding research. I brought this platform and wonderful opportunity to Northern Ireland, where I made my home. Ever since then I have a brilliant collaboration with Queen’s University Belfast where I expanded my team with Dr Cristina Lagunas, Dr Donna Rogers and Dr Nicola Minish and we have had four successful events conducted in Belfast, looking forward to the next one in 2024.



Have you got a favourite moment from a Soapbox Science event?

Every moment has been fascinating; especially the training session prior to the event and its evolution over the years. It makes me realise how younger women scientists come through with higher confidence to deliver the showcase these days. I love sensing the change in women’s confidence at these events over the years. For example, for the initial event in 2015, it

took so much persuasion to get women scientists on board and long hours of training to prepare them, however in the recent years, I see young PhD students and post docs are very comfortable and volunteer happily to participate as speakers and supporters of this event. Goes to show how we have started to embrace the culture of Women in Science more than ever!

Has Soapbox Science had an impact on your professional career?

Organising Soapbox Science gives me the opportunity to connect to women scientists in all disciplines and subjects, and from all different parts of the UK and Ireland. This is one of the programs outside of work that I enjoy most, and which helps to replenish and energise my work with scientists at all levels - the energy that Soapbox Science brings on the event day is splendid. To portray the success of research carried out by women in a public platform and in the media is an honour that I also enjoy through my professional career as a woman scientist!



Dr Sariqa Wagley



Biography

My name is Sariqa Wagley, I am a research microbiologist based at the University of Exeter and I have recently been awarded a NERC Independent Research Fellowship to investigate bacterial dormancy. My research focuses on human pathogenic bacteria in particular *Vibrio* species and how they enter a state of dormancy to overcome stress. I aim to identify which factors allow bacterial species to “wake up” and grow in the natural environment after a period of dormancy which will

help us to predict and prevent infections. I am also one of the co-organisers of the annual Exeter Soapbox Science Event which promotes research by women scientists in STEMM subjects.

How have you been involved with Soapbox Science?

I was a volunteer at the 2016 event and a speaker at the 2018 event. I found the event a brilliant way to improve my science communication skills. I had to really think about how I would convey my complicated research on bacterial dormancy to the audience. I knew I had to tell a good story to get them hooked. I told them about how fast bacteria grow and what bacteria need to do this well, I explained how bacteria cope with stress by entering a state of dormancy/sleep like state and when bacteria do this they change shape in order survive long periods of time. On the day, I felt the audience were so eager to learn and hear more about bacterial dormancy which gave me a great buzz and boost in self-confidence. Shortly after this experience as a speaker, I joined the organising team and I now jointly run the event with my fellow colleagues, Dr Ana Neves and Dr Safi Darden. We are responsible to secure money and manage the budget to support the event, select speakers and train them be good story tellers of their own research, we are involved in media engagement and raising the profile of speakers, and general publicity to ensure the event is executed successfully.



Have you got a favourite moment from a Soapbox Science event?

There are so many. I obviously loved the year 2018 when I was a speaker, that will always hold a special place in my heart and brought me a lot of joy. It was a wonderful experience and brought a lot of confidence to my ability to carry out public speaking effectively. I really enjoy working with my co-organisers Dr Safi Darden and Dr Ana Neves. Together we organise the training day a few months before the event, where we meet our speakers for the first time. On this day we explain to our speakers the history of Soapbox Science, why we need to hold an event that promotes women in science, how to use their voice and body language during public speaking, how to tell their research story on the soapbox on the day, and finally we spend time with the speakers hearing a 3-minute pitch about their research. Together as a group, we all give each speaker feedback and ideas to help them for the actual event and there is such a buzz in the room. When the training day is over and the speakers leave you will often find Safi, Ana and myself bursting with joy at seeing how enthusiastic the speakers are and from here on the excitement about the upcoming event starts to build.



Another aspect of the event that I am particularly proud of, is how much we uplift the profiles of our speakers. This year we used our budget to commission feature articles about our speakers where a professional writer interviewed each of the speakers about their research. The professional writer then wrote the feature articles about the speakers. We were able to use these feature articles in publicity around promoting the event and the speakers themselves. For the last few years we have organised an opportunity for the speakers to go to the local radio station 'BBC Radio Devon'. The Radio station is

a big fan of the event and has featured a speaker every day on the breakfast or afternoon show in the week before the event and this has given the speakers another chance to communicate their research and raise their profile as well as promote the event.

Has Soapbox Science had an impact on your professional career?

As a speaker and organiser, I have learnt how to tell a good research story. You can't just jump in with your amazing findings without building up to it and laying down the foundations for your audience to understand. Every year I organise the event I get better at giving the speakers advice on how to convey their research (some of which are in very complicated areas of science). I am learning new ways of promoting my own research and improving my own science communication skills. I enjoy being a mentor to the speakers along with my co-organisers Safi and Ana. I feel a great deal of pride that we are able to help these women scientist in improving their skills as science communicators and giving them a solid opportunity to shine.

Dr Simone Lackner & Oihane Horno

Started local team → Built visibility and network → Inspired new locations

Biography

Simone Lackner: I am a multidisciplinary scientist with a degree in Molecular Biology, a Ph.D. in Systems Neuroscience, postdoctoral training in Complexity and Computational Social Science. Having worked in eleven different institutes, across five different countries (Austria, Singapore, USA, Japan, Portugal), I planned, implemented and managed a variety of complex technology-driven interdisciplinary research projects. I have vast experience in Science Communication and Public Outreach and enjoy acting as an assertive diplomat between science, art, society, and policy. I am a passionate public speaker and, as ReMO Ambassador and the founder of The Empathic Scientist, Soapbox Science Lisbon, We and

Climate Circle and Salon Luminosa, I am an advocate for diversity, equity, inclusion and wellbeing in academia and beyond.



Oihane Horno: I earned my Bachelor's degree in Physics at the University of the Basque country, after which I moved to the Netherlands where I did my master's in Neuroscience at Maastricht University. Now I am based in Lisbon where I am doing my PhD at the Champalimaud foundation. In my project, I study the organisational structure of ethological behaviors at the Neuroethology lab.

How did you first get involved with Soapbox Science?

Through friends in Berlin, we learned about the vision and mission of Soapbox Science and we were inspired by the opportunity to build a community in Lisbon that reflects what it means to be a woman working in science. We got motivated to build a network of local female scientists. We wanted to use the opportunity to empower each other and our fellows by creating our discourse to raise public awareness. We were interested in developing actions that would foster equity and improve the visibility of female scientist, to help them in their career progression.

How have you worked with Soapbox Science since then?

We started out in 2019 by establishing a multidisciplinary and diverse team that has been fluctuating in size over the 3 years we have been active. We all created a team of highly cooperative women navigating the different tasks according to everyone's expertise, interest, and time. We have strengthened our interpersonal and written communication skills by liaising with stakeholders and sponsors, writing press releases, and answering local media outlets to foster collaborations and build a sustainable network. We have organised four outreach events: one live event at one of the biggest Science Festivals in Portugal, a mini-soapbox event at the European Researchers Night, and two online events due to the global pandemic. One of the online events included participants and speakers from all over Portugal, which launched Soapbox Science Coimbra. In order to make the outreach events possible, we actively recruited volunteers for support on the event day, including male scientists who stood as our allies. Prior to the events, we organised science communication workshops to equip our female soapbox talents with all the skills necessary to tell their research story to the public successfully and motivated them to write blog posts about their experience as a woman in STEM. Besides our own outreach events, two major research institutions in Portugal invited us to participate in their retreat to present data on Women in Science and discuss at a round table equity and wellbeing in STEM. Our social media team was creatively putting scientific findings into easy-to-understand infographics to educate the public about the gender disparity in STEM. We pitched at several Science Communication events about the Soapbox Science Initiative and even got contacted as consultants to share our opinion about a science game addressing girls' curiosity. Over 4 years we successfully embedded the initiative in the Portuguese science network, found collaborators and built allies and also got into the national newspaper.



Have you got a favourite moment from a Soapbox Science event?

Being part of the Soapbox Science organizing team. We started by building a community of trust. Our weekly meetings created a community feeling with growing companionship and acknowledgment of the importance of our voluntary work to not only raise the visibility of women in STEM, but also to create awareness of the systemic barriers that many female scientists have to face during their career. We created a safe space, a collective learning process, to express and share our experiences, worries, and difficulties, as well as to learn how to voice our opinions and to be okay with making mistakes.

Has Soapbox Science had an impact on your professional career?

Running Soapbox Science Lisbon as a self-organised team, we learned what leadership means and what kind of leadership we want to see and be part of. A non-hierarchical structure, built on empathy, authenticity, open communication, and trust. We developed a full range of new expertise in terms of project and event management, teambuilding, fundraising, and liaising with sponsors and allies. That took learning assertiveness as well as making boundaries, because it's okay to say no too. We also had plenty of possibilities to have a professional outlet, a space where we could use our talents and skills that we don't necessarily use in daily lab work. All of this broadened our soft/power skills, which we believe are important to be a successful and empathic leader in science.

Conclusion

With this report, we hoped to showcase the impact Soapbox Science has had on our speakers' community and network, their visibility, confidence and public engagement skills. By collecting anecdotal feedback and case studies we wanted to capture some of the personal stories of the people involved with Soapbox Science, and to use these to help us to build a fuller picture of the impact of Soapbox Science.

One of the main messages of the feedback we received has been how important Soapbox Science is for speakers' confidence, especially among early career researchers. The fact that many have credited Soapbox Science with sparking an interest in participating in more public engagement activities, and giving them the confidence and skills to be visible ambassadors in STEMM, is encouraging and validating. This is a credit to our local teams, who deliver the training workshops, find press and media opportunities for speakers, and make sure the events run smoothly so that speakers feel supported and relaxed while giving their presentations.

Although we did expect that speakers would value the network of other women and non-binary people in STEMM that Soapbox Science has created, we are delighted by the stories that have emerged of participants forging new friendships that have strongly impacted their wellbeing both inside *and* outside of their working life. Soapbox Science is driven by our community: the organisers who make events happen; the speakers who give amazing and engaging presentations; the volunteers who ensure everything runs smoothly on the event day; and the partners, funders and institutions who support our work. What this report has reinforced is the value of helping all of these people to connect with each other, and this is the next challenge for Soapbox Science. As the initiative grows, we need to make sure our community remains cohesive and connected, so that in another ten years' time we will still be hearing wonderful stories of speakers finding new friendships and new motivation for public engagement and challenging stereotypes.

Collecting Soapbox Science speaker and organiser feedback for this report hasn't just been informative, it has also been heartwarming and encouraging. We spend most of our time planning for the future and working on upcoming events, so it has been a pleasure to take time to reflect and read about the experiences of our community of participants. We would like to offer a huge thank you to everyone who has contributed and shared their anecdotes and stories with us.

We hope to see you at a Soapbox Science event soon!

Isla, Nathalie & Seirian

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