This report reviews the impacts of the Science Outreach Project on participating researchers during the first four years of the project, based on the Rugby Team Impact Framework. The project is funded by Roberts Money.
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Executive Summary

This report was compiled to assess the impact of the Science Outreach Project on early career researchers. The Science Outreach Project began offering training and practical experience in schools outreach in 2007. Since that time 135 researchers have been involved with the project, reaching over 1000 local school students. The impact on these researchers has been assessed at various levels according to the Rugby Team Impact Framework\(^1\). This provides evidence of impact at all levels: Foundations, Reactions, Learning, Behaviour and Outcomes.

Foundation level impacts stemmed from the creation of the project, including the establishment of a project coordinator, steering group, and provision of training and practical experience in outreach.

Reaction level impacts were assessed using feedback forms after all training and outreach events. This feedback was very positive for all events and included agreement that the project was valuable and participants would recommend it to colleagues.

Learning impacts were assessed using feedback forms and reflective practice during project debrief sessions. Feedback showed increases in participants’ self-rating of knowledge and skill levels. Participants also indicated that the project developed communication skills, confidence, teamwork, networking, creativity, flexibility, and ability to work with young people, among others.

Behaviour and Outcomes were assessed using an impact questionnaire and follow-up interviews. Responses indicate that participants developed a wide range of skills and have used them in a variety of contexts, including teaching, job applications and interviews, and at new jobs both within and outside academia. In several cases it was indicated that experience with the project was useful in obtaining a job or that it helped to define career directions. Many also indicated that their experiences with the project have encouraged them to get involved with other outreach and public engagement opportunities.

Finally, in addition to the benefits for the researchers involved, this project has provided enrichment opportunities for students at local schools. School visits and on campus events have given students the chance to learn about cutting edge science and to discuss it with the people who are actively doing the research.

Overall, the Science Outreach Project has been a huge success. Researchers highly value the project and feel it is a really useful and enjoyable experience. They have developed diverse range of skills and enhanced their CVs while contributing to enrichment activities for local schools. Many have continued with the project or used it as a stepping stone for other opportunities. The project has been demonstrably valuable both to researchers and the wider community, and should be continued and extended across the University. This report provides strong evidence of these impacts as support for the continuation of this exceptionally successful project.

Introduction

The University of Nottingham’s Science Outreach Project has the formal title “Public Understanding of Science – Communication Skills for Researchers”. The project is funded by RCUK’s Career Development and Skills Training for Research Students and Researchers Payments (Roberts Money). It aims to train early career researchers in communication and outreach skills, and then encourages them to share their scientific knowledge and research experience with local schools. The project began in September 2006 and so far 135 researchers have been involved, working with over 1000 school pupils and inspiring teachers.

The Science Outreach Project is open to researchers in the Schools of Biology, Biosciences, Chemistry, Pharmacy and Physics and Astronomy, and the Faculty of Engineering. Researchers commit to attending a two day training course and completing at least one school visit. Following this, additional opportunities are provided to help with events on campus, in schools and at community events both through the project and individual departments. Researchers are also invited to take part in a project debrief session to hear the feedback from the schools, reflect on their experiences and the skills they developed, and consider how to best present those skills in applications and interviews.

The direction of the project is decided by a Steering Group composed of PhD students, contract researchers, academics, outreach professionals, and representatives from the University’s Widening Participation team and Graduate School. A Project Coordinator takes care of the day-to-day running of the project. Occasional focus groups of previous participants are also convened to discuss possible changes to the project.

The impact of the Science Outreach Project has been assessed using four primary tools. First, feedback forms were completed by the researchers following every training and outreach event. An example form can be seen in Appendix 1. Second, discussions at the project debrief sessions provided an opportunity to reflect on impacts. Third, an Impact Questionnaire (Appendix 2) was sent to participants from the first three years of the project in April 2010. This allowed us to consider impacts for researchers one year or more after completing the project. Finally, from the Impact Questionnaire respondents, seven people were interviewed as case studies to provide a fuller picture of the impacts for individuals. Additionally, impacts for the schools involved were assessed via teacher feedback forms and informal communication after all events, with additional information from feedback forms completed by students after events held at the University.

Impact Evaluation

In the following sections, the evidence for the impact of the project is presented for all levels outlined in the Rugby Team Impact Framework: Foundations, Reaction, Learning, Behaviour and Outcomes. Impacts for the schools involved in the project are also considered.
**Impact Level 0: Foundations**

Foundation level impacts relate to new infrastructure, support and training opportunities. For the Science Outreach Project this has meant offering enhanced training provision in the form of an annual two-day course on science communication and outreach and an annual project debrief session focussing on reflective practice. It has included the provision of practical experience in the form of school visits and events on campus. To date, this has included 35 visits to local schools, four Science Circus events for National Science and Engineering Week and seven half day master classes for AS students, designed and delivered by researchers. Researchers have also had the opportunity to participate in community events including the Darwin 200 Celebration, University of Nottingham Community Open Days, Nottingham Science Festival, Nottingham BioBlitz and others. Additional opportunities have also been provided by participating schools and departments.

Further ‘Foundations’ have included the employment of a project coordinator (0.6 FTE) to run the project and support the researchers, the development of a steering group composed of postgraduate and contract researchers, academics and outreach and training professionals, and the establishment of a pool of academic outreach mentors to provide advice and support to early career researchers participating in the Project.

**Impact Level 1: Reaction**

Participants’ reactions were gauged using feedback forms after all training and outreach events. Feedback throughout the project has been overwhelmingly positive, while any criticisms have been reviewed by the steering group and used to improve the project year-on-year.

Feedback forms from all years indicate that reactions to the training course were very positive. The most common written comments expressed the following:

- The training was fun or enjoyable (11)
- The training was useful or informative (13)
- The speakers were very good (14)
- The course was good, excellent or great (7)
- The course was interesting (5)
- The course was interactive and engaging (25)

More specific comments included:

- “Essential for volunteers in this project, and the transferable skills are useful for personal development as well.”
- “Excellent so far! Really looking forward to getting into school!”
- “I think this course was as good as it could have been done.”
- “Excellent stuff, very well organised!! “
- “Very interactive and informative.”
Comments following the school visits were similarly very positive, with some of the most common comments including that it was a great experience (10) and that it was fun and enjoyable (8). Feedback form responses further confirm researchers’ positive views of the project (Fig. 1).

Researchers were also given the option of contributing to National Science and Engineering Week Science Circus events and helping to develop and deliver half-day master classes for A-level students. Researchers who chose to help with these events responded very positively, all agreeing that the experience was valuable and they would recommend it to friends. Comments show that these were enjoyable and very useful experiences:

- “I really enjoyed the summer master class. It was a great opportunity to meet and work with colleagues at Sutton Bonington and find out more about their areas of research. It was useful that I was able to attend sessions given by colleagues so I could experience different teaching styles. It was useful to have the chance to run a longer session so I could have the opportunity to get a little more in depth with my subject. It was really useful to be able to use university labs and equipment for the session- it probably allowed me to run a more detailed practical session than would have been possible within the school.”
- “The master class was the best bit of the whole outreach experience. It allowed enough time to do something in more detail and with more hands-on work. My main recommendation for the project would be that everyone should have a chance to do a master class. I definitely got the most out of that part of the project.”
- “It was brilliant – it gave me the opportunity to plan a longer session and bring in lots of different themes from my research, and it gave the students the opportunity to see lots of different aspects of their studies brought together in a real world application, and the chance to use facilities/resources that would not be available in school.”
• “The workshop sessions for NSEW were really well organised and well attended and were really useful to take part in.”
• “The Science Circus as preparation for the school visit was particularly enjoyable, since the activity was carried out many times and a good range of students attended it, which was an interesting variety and required different teaching skills.”
• “It was very interesting to see how students reacted to information we gave them. It was a very useful and enjoyable experience for me because it was done outside the normal university environment.”

**Impact Level 2: Learning**

Impact on learning is gauged by the ‘extent to which participants change attitudes, improve knowledge, and/or increase skill as a result of attending the programme’. This was assessed using feedback forms, discussion at the project debrief sessions and the impact questionnaire and interviews. Figure 2 shows the change in the researchers’ perceived levels of skill in communicating their research before the training, after the training and after the school visit. The level of skills increased from a mean rating of 2.8 (low to medium skill level) before the training to 4.4 (high to very high skill level) after the school visit.

Results from the project debrief sessions and impact questionnaires show that researchers recognise development of a whole range of skills as a result of participation in the project. Communication and presentation skills were the most frequently cited as having been enhanced by the project. Other skills included improved confidence, flexibility, team work, networking, evaluation, session planning, resource preparation, public speaking, creative thinking, critical thinking, problem solving, teaching, organisation, management, clarifying messages, tailoring for different audiences, working with children, and working in schools. The project has provided new learning opportunities, ongoing development of skills, and experiences which provide lasting advantages for the participants:

• “The project provided one of the first opportunities to work in teams and pairs in what can otherwise be a very isolating training process (the PhD) and professional field (science research). It allowed me to meet people from across the school and other schools, and make friends and contacts in other fields.”
• “It was very rewarding in terms of helping me to communicate. Every time it gets better. I don’t have to spend as much time on reference work. You can’t always anticipate student questions, but I find it easier to answer them now. Now I know how to talk to people. People don’t always need to ask for clarification of what I do after I explain it.”
• “The whole project has made me better at presenting and communicating things. [...] It’s been a big advantage now as I’m working to disseminate research to policy makers.”
Figure 2: Researchers were asked to rate their level of skill or ability in communicating their research to non-specialists, with 1 equalling very low ability and 5 equalling very high ability.

**Impact Level 3: Behaviour**

Level 3 impacts consider whether there has been a change in the behaviour of the researchers and to what extent any change is due to participation in the project. In particular, it considers application of learning. This was gauged based on the impact questionnaire results (Appendix 3) and case study interviews (Appendix 4). A record was also kept of the number of researchers continuing with the Science Outreach Project after completing the one required school visit.

All impact questionnaire respondents said that they had applied the skills they learnt in the project. Examples they cited included using their communication skills to explain their work to friends, family, industrial partners, colleagues from other disciplines, public groups and students. Several said they used this project as an example on CVs, job applications and in interviews. Most of the examples provided show that use of the skills obtained is ongoing. At least four people made it clear that they use skills developed in the project on a daily basis in jobs obtained after leaving the university.

Of the 95 researchers who joined the project in the first three years, 37 continued to help with project events beyond the initial requirements. The results of the impact questionnaire and personal communications show that many participants have also been inspired to help with other outreach and public engagement work, including:

- Outreach projects in their academic departments,
- Local community events like the University Community Open Days, Darwin 200 Celebration, Nottingham Science Festival, Nottingham BioBlitz, and Lakeside Children’s Festival,
- National events like the Big Bang Fair,
- National programmes like Researchers in Residence, and
• Events they organised themselves with local schools.

**Impact Level 4: Outcomes**

Impact level 4 explores the final results of a project. It considers whether changes in behaviour have resulted in different outcomes for the researchers and also asks whether it has contributed to a more highly skilled workforce. For this, participants from the first three years of the project were asked to complete an impact questionnaire in April 2010 (i.e., one or more years after completing their training and first school visit). Following this, seven respondents were interviewed as case studies (Appendix 4).

Results from the impact questionnaire suggest an ongoing use of the skills developed in the project. At least six participants have indicated that it has helped them to obtain a job, and many more have stated that they use the skills they developed in their work and/or social lives. One participant has decided to go into teaching as a result of her experiences in the project, and other experiences which this project inspired her to seek out:

“...I went on to complete a Researchers in Residence placement, for which the training and experience I received in the outreach project was incredibly useful. My experience of working with A level students in the project also helped me to secure a temporary job as a post-16 tutor. The project helped me to develop skills of session planning and communicating challenging concepts to young people, and a lot more confidence, which I have since used and developed through education volunteering and public lecturing. The project was my first experience of teaching/public engagement and inspired me to gain a lot more experience in this field and ultimately to pursue a career in this direction, starting with a secondary science PGCE course following my PhD.”

Another participant now works for a children’s charity and has said she finds the skills developed with the project extremely useful:

“I learned about Widening Participation from the trainers. This has helped me in my voluntary sector work with children and young people. Training in safeguarding, language, curriculum, and communication with young people have all helped my in my roles as a ChildLine counsellor and outreach volunteer. My new job, at a charity for which I was previously a volunteer, also involves visiting schools and communicating effectively to young children. In job interviews and applications, the Roberts project reflected my commitment to young people, my capacity to connect with them, and showed employers that I was more “colourful” than the stereotype of a scientist!”

Researchers say that the skills they developed have helped to improve their work with students, including supervision of projects and demonstration of laboratory practicals. The skills have also improved their confidence for presenting their research at all levels, from school students to academic supervisors and peers. Several quotes from participants demonstrate the impact of the project on their outcomes:
• “I am now working in business development, and I need to explain science to industrial partners. I used this project on my CV. [...] People like to see that you got out of the lab and talked to others. In my interview, I had to explain my PhD in 2 minutes to people without chemistry knowledge and I was the only one who was able to do that. Young people are a far harder audience with tougher questions than any adult in the chemical using industry. I use the skills that I learnt through outreach to help communicate and it doesn’t phase me to simplify complicated concepts for different audiences.”
• “It definitely improved my communication and presentations skills, helped me to create more effective presentations - not too much text, even for a professional audience! It was a good thing to have on my CV and served as a talking point at my interview with AstraZeneca. I’m now a STEMNET ambassador and do outreach as part of my job.”
• “Having been trained to communicate science effectively to non-scientists, I went on to be shortlisted in a regional public engagement with science poster competition, take on the role of science editor for the university newspaper with greater confidence - a position which has impressed a range of potential future employers, and win a New Scientist science essay competition engaging the public with animal behaviour research.”

Impacts for Schools
In addition to the positive impacts for researchers, the Science Outreach Project has provided science enrichment opportunities for students at local schools. Feedback was collected via feedback forms from teachers following all school visits, and from both teachers and students following events at the University.

Feedback from teachers following school visits and other events has been very positive (Fig. 3). All teachers we have worked with have requested additional similar events, demonstrating that they value the project. Specific comments have included:

• “Overall very enjoyable and inspiring. Gave year 12 ‘food for thought’ before completing their UCAS applications. I feel sure it will encourage some to go into research. Thank you for coming!”
• “The presentations were very clear and pitched at the right level. Thanks for your time and effort!”
• “A thoroughly enjoyable event – thank you very much!”
• “Thoroughly enjoyed by pupils and teachers! Excellent presentation. Fun and interesting activities. Difficult to target pupils between yr 10 and yr 13, but you did an excellent job making it relevant and informative for everyone.”
• “Very impressive teaching techniques! Thank you for coming!”
Feedback forms from 27 students who attended the 2010 master classes showed that all students agreed that the events were interesting and enjoyable, and 26 agreed that they learned something new. Additionally:

- 19 students responded that the event had encouraged them to consider further study at university,
- 14 agreed that the event encouraged them to consider studying a science at university, and
- 7 reported that the event encouraged them to consider studying at the University of Nottingham

Similarly, student feedback from the National Science and Engineering Week Science Circus events shows that the event encourages many to consider further study (Fig. 4) and comments indicate that the students find the events useful and enjoyable:

- Insightful not only in the subjects and research but university life also.
- I really enjoyed it. Thank you :)
- Thanks. Well done!
- The people really influenced and made their subject sound really interesting.
- Always knew I was going to go to university but didn’t know there were so many subtopics to study!
- Loved it. Varied and interesting.
- The event was very interactive and therefore very fun! The little workshops were so interesting - I learned a lot.
- I found this experience very useful.
- Experiencing all these different fields is great. I want to study them all!
- I really enjoyed it and found all aspects interesting.
- I was already considering biology, and this event helped me by highlighting areas of biology that interest me.
Discussion

The Science Outreach Project has been a huge success, providing training and practical experience to 135 researchers and working with over 1000 local school children. It has had a real impact not only on the researchers who have participated, but also on the students who have attended events. This has been demonstrated at all levels, with researchers and schools showing that they highly value the project.

At the foundation level, the project provides a unique opportunity for training, practical experience and reflective practice. Researchers are given a very high level of support by the project coordinator and academic mentors. The project is responsive to concerns and ensures it remains relevant for researchers through the steering group. The group includes researchers and acts to change and improve the project based on suggestions and comments from participants. Focus groups are also convened as necessary to gauge participant opinions on any proposed major changes.

Reactions to the project have been very positive overall. Researchers say the project is both enjoyable and useful. Of 110 participants who responded to feedback forms, all agreed or strongly agreed that the project was valuable. 109 said they would recommend the project to colleagues, with only one person not sure or neutral.

A few comments with suggestions for improvements have been received, mostly from participants in the first year as the project was still being developed. These have included comments on some weak points in the training and concerns over the length of time for activities at the school visits. All concerns have been presented to the steering group. In light of this, various sessions in the training
have been amended. New speakers have been brought in, certain sessions have been shortened and made more interactive, and more time is now spent on structured activity development. For the school visits, activity slots have been lengthened to allow more time for practical work and questions. Additionally, more individual feedback is now provided after the school visits and other events.

The project has contributed to a wide range of learning and skills development for the researchers involved. Researchers have cited improvements in at least 20 different skills, ranging far beyond communication and presentation skills. They have gone on to use these skills in further outreach events, in their research work, teaching and student supervision, at conferences, in CVs and job applications, and a range of other contexts. For some, the project has helped them to define new career prospects. For others, it helped set them apart during interviews and obtain new jobs.

Further to these impacts for the researchers, are the impacts for the schools involved in the project. Teachers see the outreach events provided by the project as really useful enrichment opportunities for their students. They agree that they help their students to learn about science. Students themselves have indicated that the events are interesting and help them to learn. Many have also indicated that events have encouraged them to consider further study at University. In a region where progression to University is notoriously low, these events can make a valuable contribution to widening participation.

This project has clearly succeeded in providing a unique opportunity for skills development, which has benefitted researchers and local students alike. Two comments from researchers provide an excellent summary and closing point:

- “The project was a fantastic experience, and helped me to develop skills and confidence which I have used in varied and unexpected contexts.”
- “It would be a real shame not to have the capacity to do something like this. Development through outreach is so important and, crucially, it helps the university image. Good luck!”
Appendices

Appendix 1: Sample Feedback Form

Public Understanding of Science – Communication Skills for Researchers
Researcher Feedback Questionnaire

The purpose of this form is to enable us to evaluate and improve the project. Please take a moment to complete it and return it the project coordinator

Your experience today

1) The school visit reflected the format described beforehand
   □ Strongly Agree □ Agree □ Neutral/Not Sure □ Disagree □ Strongly Disagree

2) I was given clear details of the event in advance
   □ Strongly Agree □ Agree □ Neutral/Not Sure □ Disagree □ Strongly Disagree

3) The school visit was relevant to my interests
   □ Strongly Agree □ Agree □ Neutral/Not Sure □ Disagree □ Strongly Disagree

4) The school visit was a good way to put into practice the skills I had learnt on the training course
   □ Strongly Agree □ Agree □ Neutral/Not Sure □ Disagree □ Strongly Disagree

5) The amount of preparation required for the event was right
   □ Strongly Agree □ Agree □ Neutral/Not Sure □ Disagree □ Strongly Disagree

6) The mentor system prepared me well for the event
   □ Strongly Agree □ Agree □ Neutral/Not Sure □ Disagree □ Strongly Disagree

7) The training prepared me well for the event
   □ Strongly Agree □ Agree □ Neutral/Not Sure □ Disagree □ Strongly Disagree

8) Comments (please give further comments on any of the above)

9) Are there any other topics, highlighted by the event, that you feel should have been covered in the training? (please state)
How you viewed the school’s experience

10) The school teachers were positive and enthusiastic about the event
   ☐ Strongly Agree  ☐ Agree  ☐ Neutral/Not Sure  ☐ Disagree  ☐ Strongly Disagree

11) The event was well-attended
   ☐ Strongly Agree  ☐ Agree  ☐ Neutral/Not Sure  ☐ Disagree  ☐ Strongly Disagree

12) The students were interested in my activity
   ☐ Strongly Agree  ☐ Agree  ☐ Neutral/Not Sure  ☐ Disagree  ☐ Strongly Disagree

13) The students were engaged
   ☐ Strongly Agree  ☐ Agree  ☐ Neutral/Not Sure  ☐ Disagree  ☐ Strongly Disagree

14) Comments (please give further comments on any of the above)

Reflections

15) Overall the experience was valuable
   ☐ Strongly Agree  ☐ Agree  ☐ Neutral/Not Sure  ☐ Disagree  ☐ Strongly Disagree

16) I would recommend this project to colleagues
   ☐ Strongly Agree  ☐ Agree  ☐ Neutral/Not Sure  ☐ Disagree  ☐ Strongly Disagree

17) Thinking back to the training, please rate your ability to communicate your research in an interesting and engaging way to non-specialists...
   a) Before the training:  ☐ Very high  ☐ High  ☐ Medium  ☐ Low  ☐ Very Low
   b) After the training:  ☐ Very high  ☐ High  ☐ Medium  ☐ Low  ☐ Very Low
   c) After the school visit:  ☐ Very high  ☐ High  ☐ Medium  ☐ Low  ☐ Very Low

18) Any other comments about the event
Appendix 2: Impact Questionnaire

This questionnaire is designed to help us assess the value of the Public Understanding of Science – Communication Skills for Researchers project. The results will help to determine the future of the project. Please complete the form as fully as you can, and feel free to use additional sheets if necessary. Thank you very much for your help!

School/Department: __________________________ Date: _____________________________

1) When did you attend the training course?
   □ January 2007
   □ January 2008
   □ January 2009

2 a) What was your view of the experience as a whole (including training, school visit, and any other events you were involved with)?
   □ Very positive
   □ Fairly positive
   □ Neutral
   □ Fairly negative
   □ Very negative

   b) Please use the space below to describe any particularly positive or negative aspects of the overall experience:

3 a) Did you attend the project debrief session?
   □ Yes (Please go to Q3b)
   □ No (Please go to Q4a)
   □ Can’t remember (Please go to Q4a)

   b) What was your view of the project debrief session (e.g. were any elements particularly effective / ineffective)?

4 a) Did you help with a summer master class?
   □ Yes (Please go to Q4b)
   □ No (Please go to Q5a)
   □ Can’t remember (Please go to Q5a)
b) What was your view of the summer master class (e.g. what did you particularly like or dislike about it)?

5) What skills (if any) did this project help you to develop or improve?

6 a) Have you applied any skills that you developed during the project (e.g., in your work, studies, interviews or social life)?
   - [ ] Yes (Please go to Q6b)
   - [ ] No (Please go to Q7)

   b) If yes, please briefly describe which skills and in what situations these have been applied:

7a) Are you still involved with the project?
   - [ ] Yes (Please go to Q7b)
   - [ ] No (Please go to Q8)

   7b) If yes, in what capacity are you involved (e.g., help with training, school visits, steering group, etc)?

8) What are you doing now? We’d be interested to hear if you have completed your contract or degree, published anything, found a new job, are looking for a job, etc.

9) Please use the space below to suggest any improvements to the project or provide any additional comments:

10) Would you be happy to be interviewed about the project? If so, please include your contact details.
Appendix 3: Impact Questionnaire Results

Section 1: Respondents

In the first three years, 95 researchers participated in the Science Outreach Project. Live email addresses were available for 75 participants, but it was not possible to determine how many of these were still actively being checked by the owners, so the actual number of recipients may have been lower.

We received 25 responses to the questionnaire. The breakdown of these respondents by year of participation and academic school is available in Table 1. For comparison, the breakdown of project participants in the first three years is available in Table 2.

13 respondents are still working on postgraduate degrees. Seven are contract researchers, either in the same position they were in when completing the project or in a new position. One is now completing a PGCE, in part inspired by her participation in the project. The final four have completed their PhDs to begun work: one at the Business Partnership Unit in Chemistry, one as a Scientific Computing Specialist at Astra Zeneca, one as the Research Development Worker for the Carers Federation charity, and one lectured part time at the Universities of Nottingham and Derby before becoming a Fundraiser for the Place2Be charity. Eight of the respondents are still actively working with the project as members of the steering group, assisting with the training, or helping with school visits and other outreach events.

<table>
<thead>
<tr>
<th>Table 1: Breakdown of Impact Questionnaire respondents by school and year of joining</th>
<th>Table 2: Breakdown of project participants by school and year of joining</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>2007</td>
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<tr>
<td>Biology</td>
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<td>Pharmacy</td>
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<tr>
<td>Engineering</td>
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</tr>
<tr>
<td>Total</td>
<td>10</td>
</tr>
</tbody>
</table>

Section 2: Reactions to the Project

When asked about their view of their experiences with the project as a whole, 21 respondents reported that it was Very Positive and 4 responded that it was Fairly Positive. 24 respondents
commented on the positive and negative aspects of their overall experience with the project. Comments in this section were very positive about both the training and the project as a whole. These comments showed that researchers highly valued the training course, school visits, National Science and Engineering week events, the support and opportunities that were available to them and the project as a whole. A selection of comments follows:

- “The training was very valuable; school visits were well organized and students responsive. The science circus event was an excellent opportunity to finely hone the presentation before going out on the school visit.” (Year 2 participant)
- “It was a really great opportunity to be able to prepare a short lesson and present my work to a younger audience. It was a very rewarding experience, especially the feedback and discussion that was undertaken with the students after my presentation. To spark interest and enthusiasm from students that are wondering whether to continue their education in science was certainly worthwhile.” (Year 3 participant)
- “I particularly liked that researchers could be involved in as much or as little as they wanted/had time to do, e.g. just taking part in the training and one school visit, with the option of going on further visits, taking part in the science circus, helping with the following year’s training, joining the steering group, taking part in the master classes, etc. Being able to take part in so many different things was invaluable experience, and I enjoyed working with lots of different young people and developing my skills.” (Year 1 participant)
- “The course really made me think about how to deliver scientific information to a wider public audience and I think this is one of the vital abilities one needs in the future.” (Year 1 participant)
- “The course was very informative and the school visit provided excellent experience.” (Year 3 participant)
- “The experience has been extremely valuable to me – I’m sure that it has helped me to find employment since I finished my PhD!” (Year 1 participant)

Areas highlighted for improvement were limited to a couple of comments about the training:

- “I enjoyed most aspects of the course though might require more time on hands on activities. I would recommend more school visits.” (Year 3 participant)
- “I felt there was excessive time spent learning about child protection, considering we were spending such a short time with students and never unaccompanied.” (Year 3 participant)
- “It took more time to plan the school sessions than I expected.” (Year 2 participant)
- “I thought the course was extremely well run and with the exception of one lecture (the health and safety one which I believe has since changed) very well taught.” (Year 1 participant)
- “The school visits were excellent and a fully rewarding experience. My feelings towards the training course were rather less positive as I feel much of it was somewhat irrelevant and unnecessary. I also felt the training was lacking in information that would have been useful such as what makes a good outreach activity and how to go about designing one.” (Year 1 participant)
Researchers were asked if they attended the project debrief session. 12 respondents said they did and commented on the experience. Comments were again very positive, with some room for improvement:

- “It was useful to hear how others got on, both positive and negative. It assisted in subsequent events.” (Year 1 participant)
- “I thought the debrief session was useful, although there could have been more information on the implications of the outreach project for our careers/CVs.” (Year 1 participant)
- “Good but a little contrived/artificial and long winded way to get feedback and give closure but allowed more networking.” (Year 1 participant)
- “It was good to see the results of all the evaluation forms brought together, rather than just doing a school visit and never finding out and evaluating how it went. It might be nice for groups of researchers who went on particular school visits to be able to see the feedback for their session separately to be able to respond to any specific comments. The careers and CV help was invaluable.” (Year 2 participant)
- “I really enjoyed the project debrief – a good chance to compare experiences with other researchers.” (Year 2 participant)
- “The discussions of career prospects within and outside of academia were interesting- the representative from the Careers Service was excellent.” (Year 3 participant)

Participants were also asked whether they helped with a summer master class event. 10 responded that they did and commented on their experience.

- “I thought the master classes were excellent: both for the researchers who had the opportunity to introduce their research and methods to interested A-level students, and I think for the A-level students themselves. I particularly liked the hands-on approach in contrast to the normal outreach presentations.” (Year 1 participant)
- “It was brilliant – it gave me the opportunity to plan a longer session and bring in lots of different themes from my research, and it gave the students the opportunity to see lots of different aspects of their studies brought together in a real world application, and the chance to use facilities/resources that would not be available in school.” (Year 2 participant)
- “I really enjoyed the summer master class. It was a great opportunity to meet and work with colleagues at Sutton Bonington and find out more about their areas of research. It was useful that I was able to attend sessions given by colleagues so I could experience different teaching styles. It was useful to have the chance to run a longer session so I could have the opportunity to get a little more in depth with my subject. It was really useful to be able to use university labs and equipment for the session- it probably allowed me to run a more detailed practical session than would have been possible within the school.” (Year 3 participant)
- “The master class provided quite a different learning/responding environment compared to the school visit. I felt the students responded well to the university environment and were generally keen to take part in the master class.” (Year 2 participant)
• “I enjoyed helping to organise the master class here at Sutton Bonington, especially as we were able to incorporate a range of activities for the students, including a tour of our arboretum which I myself found interesting!” (Year 3 participant)
• “Good experience. A lot of adapting/thinking on your feet. I think this allows a few school students to get a very positive experience. Good opportunity for researchers to gain teaching experience.” (Year 1 participant)

Section 3: Learning and Skills Development

Respondents were asked what skills (if any) the project helped them to develop. 24 of 25 respondents listed some skills. All of them mentioned improved communication and/or presentation skills. Other skills listed included improved confidence, team work, evaluation, session planning, resource preparation, public speaking, critical thinking, teaching, organisation, management, clarifying messages, tailoring for different audiences, working with children, and working in schools.

• “Communication skills – particularly in expressing science to those with limited knowledge of the field. Also confidence not only in public speaking but in explaining scientific concepts to others.” (Year 1 participant)
• “I developed better presentational skills and also working as part of the team. The communication of my research area has continually improved.” (Year 3 participant)
• “Communicating to a variety of audiences in different contexts, communicating challenging concepts, evaluation, session planning, resource preparation, public speaking, critical thinking.” (Year 2 participant)
• “It allowed me to improve my teaching and communication skills and gave me a greater understanding of the practical aspects involved in running outreach activities with young people.” (Year 3 participant)
• “Communication skills, in particular ability to speak to small groups and to think creatively about teaching subject matter to a non-scientific audience.” (Year 3 participant)
• “Confidence in communicating my work at a level that is accessible to others. I had wanted to get involved with outreach, but had no idea where to start. Once I’d done the course and school visit that opened the doors for more opportunities that I would have never been able to do without first sorting out the activity on the course. It’s also made me more excited about how important my work is.” (Year 1 participant)
• “Thinking about the target audience in more detail and trying to adjust to it. Presenting in English as English is my second language.” (Year 3 participant)

Section 4: Behaviour change and Outcomes

When asked if they had applied any skills they developed during the project, all 25 responded ‘Yes’. Respondents have used their communication skills to explain their work to friends, family, industrial partners, colleagues from other disciplines, public groups and students. Some have used their
experiences as a stepping stone for further volunteering with outreach events and programmes like Researchers in Residence. Several said they used this project as an example on CVs, job applications and in interviews. Most of the examples provided show that use of the skills obtained is ongoing. At least three people made it clear that they use skills developed in the project on a daily basis in jobs obtained after leaving the university.

- “My employer, AstraZeneca, was a lead sponsor at the Big Bang Fair in Manchester. I aided in the design of movies and hands-on demos of computational chemistry. Over 22K students attended to which there was much positive feedback to our stand.” (Year 1 participant)
- “I went on to complete a Researchers in Residence placement, for which the training and experience I received in the outreach project was incredibly useful. My experience of working with A level students in the project also helped me to secure a temporary job as a post-16 tutor. The project helped me to develop skills of session planning and communicating challenging concepts to young people, and a lot more confidence, which I have since used and developed through education volunteering and public lecturing. The project was my first experience of teaching/public engagement and inspired me to gain a lot more experience in this field and ultimately to pursue a career in this direction, starting with a secondary science PGCE course following my PhD.” (Year 2 participant)
- “I work in an outreach capacity within the University and am using skills and contacts developed through my participation with this project on a daily basis.” (Year 2 participant)
- “Organisation and communication skills are used in planning and facilitating different research projects.” (Year 2 participant)
- “I feel more confident explaining my work to non-specialists in an informal setting, and feel better able to speak in a formal setting e.g. conference presentation, with nerves playing a much smaller role than before.” (Year 3 participant)
- “Communication skills are valuable to learn. I found that after speaking to young people (who often ask the most difficult questions to answer) speaking in front of peers is not as intimidating. I have also found that it is a valuable thing to include in interviews, job applications and on my CV.” (Year 1 participant)
- “In my current role I am breaking down the research process and findings for non-specialists.” (Year 1 participant)
- “As a PhD student or researcher you constantly need to present your data/research to different audiences and you also need to communicate constantly with colleagues. For both the gained improvement of presentation skills and a better understanding of factors which influence communication helped me understand how I can it make easier for others to understand what I want to get across.” (Year 3 participant)
- “I lectured animal behaviour at universities of Nottingham and Derby, did some science outreach to young people in a local cinema, did an "in reach" seminar to university staff who were not academic staff. All of these were assisted by the Roberts training which helped me to clarify messages, tailor to particular audiences (and young audiences), use props and multi media presentations, audience participation, and be a confident presenter. Training about child protection and working in schools is still of relevence regularly. I have used my communication with young people skills as a ChildLine Volunteer, then doing assemblies about Childline I even visited the same school as I went to with Roberts, so it was very
relevent! Now I have moved on to a career in charity, still connected to schools and involving communication, so the training continues to help.” (Year 1 participant)

Section 5: Final Comments and Reflections

The final question on the survey asked respondents for any suggestions for improvements to the project or any additional comments. 15 responses were received for this question. Areas suggested for improvements were:

- “I think this project is very good especially the school visit program, but there was limited time to present our project [we had to hurry and only a few students could be involved in the practical]” (Year 3 participant)
- “It’s unlikely they would have time, but it could be really useful to have a teacher who has participated in the scheme come to the training session and talk briefly about what types of activities have gone down particularly well with pupils in the past and to be available to answer questions on particular activities and whether pupils are likely to have encountered them before.” (Year 3 participant)
- “In the actual school visits it would be nice to have 1 less group of students than outreach people as this way we would have a choice to have 1 “break” and listen to each other’s activity.” (Year 1 participant)
- “Improve awareness especially with academics to give participants more support/encouragement” (Year 1 participant)
- “Another school visit to a different age group may be useful” (Year 3 participant)
- “I think the project is great as it is. My only suggestion is to create more opportunities for participation in the master-classes.” (Year 1 participant)
- “More discussion about the long term objective would be very motivating - is it around widening participation in higher education, interest in science? raising aspirations? I’m sure the project does some of all. Some stats about educational access for people from disadvantaged communities would increase drive and purpose for participants.” (Year 1 participant)

Final comments were again very positive and showed that researchers really value the project:

- “It was all brilliant!” (Year 2 participant)
- “I think the project provides a valuable experience for postgraduate students and contract research staff. I would particularly encourage contract research staff to get involved and use this opportunity to present their work to a non-specialised audience. Not only does this benefit the schools involved – it can be of great personal benefit to be able to discuss scientific outcomes to a general audience.” (Year 2 participant)
- “The whole project has made me realise how much I want to be able to work in a team/group environment after my PhD.” (Year 3 participant)
- “The project was brilliant – it was really good to get out of the lab for a while and work on something else for a change, and the experience has really added something extra to my CV. I’m so grateful for being given the opportunity to take part in such a scheme.” (Year 1 participant)
- “I just hope the course continues, as I feel I would have never had the opportunity to do any of the additional school visits or days without first being introduced to outreach. The first activity back in 2007 was just a start of something much bigger for me.” (Year 1 participant)

Discussion

Impact Questionnaires were received from a third of those who were contacted and include representatives from different years, schools, genders and career levels. Responses were overwhelmingly positive and show that the project has had a lasting effect on participants, in some cases more than three years after first joining.

Some suggestions for improving the training course or the project as a whole were suggested by respondents. In many cases these suggestions were highlighted in feedback forms at the time, or by the steering group, and action has already been taken to improve the project. As one researcher said, “I took part in the course in 2007 and was on the steering committee briefly at the time. [...] The suggestions that were made were taken on board and helped the project move forward.” For instance, the training course has changed substantially since the first year of the project to include more practical work and advice on designing activities. It also now includes a period for discussion with one of the teachers from a school we visit. Training on child protection and health and safety have been revamped and made more interactive. We continue to work to improve the project to provide the best possible experience for the researchers.

We are really pleased to see that the respondents all felt their experience with the project was positive overall. This reflects the feedback that has been received at all of our events and shows that on reflection their impressions remain positive. The breadth of learning which has been attained through this project stresses the importance of outreach work in developing a whole range of skills. Though communication and presentation skills were undoubtedly the most strongly developed; confidence, team work, critical thinking, organisation and the myriad others cited are all essential for many careers both within and outside academia. The fact that all respondents were able to cite examples of how they have used, and continue to use, the skills they developed emphasises this point.

Researchers have seen a variety of behaviour and outcome impacts due to the project. Many researchers have contributed to additional outreach and public engagement events. They have used the skills they developed in their work and on job applications. In several cases, experiences with the project have helped researchers to determine career directions or obtain jobs.

Researchers who have been through the project recognise its importance in their skills development and continue to use those skills. Their comments have highlighted a wide range of benefits for their individual development and their careers.
Appendix 4: Case Studies

We interviewed the following 6 participants for case studies:

1. Female, Contract Researcher, Biology, joined project in 2007
2. Male, Postgraduate Researcher, Biology, joined project in 2007
3. Female, Postgraduate Researcher, Chemistry, joined project in 2007
4. Male, Postgraduate Researcher, Chemistry, joined project in 2007
5. Male, Postgraduate Researcher, Chemistry, joined project in 2009
6. Female, Postgraduate Researcher, Biosciences, joined project in 2009
7. Female, Postgraduate Researcher, Biosciences, joined project in 2009

Case Study 1
X was a contract researcher in the School of Biology when she joined the project in its first year. She is still working as a researcher in the same lab, and is still actively involved in the project. She is a member of the Steering Group and continues to help with school visits and other events.

X originally heard about the project when she saw fliers for an initial meeting and decided to go along and find out more. She didn’t have any specific expectations of the project, but wanted the opportunity to try outreach. Since then, it has since blossomed into more for her. Before joining the project, she didn’t know of any way to get involved with outreach and this project gave her that opportunity.

X said that the best part of the training was having a mentor who had done outreach. “Working with the mentor was extremely valuable. She gave advice on how to tailor the presentation.” X also said that hearing from teachers was valuable and helped her to pitch her activity at the right level. The safety session was a bit dull. She also remembered interactive activities that helped researchers to practice quickly making something that others could understand and explaining their research to a partner so they could tell it back to you. This exercise helped to identify jargon that they didn’t realise they were using. Overall, X said that the training was very good, it worked well, and it was nice to have support.

Reflecting on her outreach experience, X said that the school visit was very important. “Its important to do a school visit, go into a different environment. I think it’s really important and gives you a more personal experience.” X helped with the National Science and Engineering Week Science Circus event in her second year. She said this was perhaps more interesting and more enjoyable than the school visit, but that might be because she was already more experienced. She also helped to develop a master class and reflected that it was more testing, but really enjoyable. The extra time with the students allowed her to do something more in depth than at other events.

When asked if the project had provided any benefits to her, X said “Definitely.” In her research post, she now has more supervision duties, which involves communicating much more with students. She also said, “Without the course I never would have done Darwin Day, Nottingham Science Festival and other community events, which has been my favourite. The course is such a good starter, it got bigger and better. I love doing outreach and am always keen to do more. You get to meet lots of different people.”

X said that if given the chance, she would definitely get involved with the project again, that she encourages others to get involved every year and that it’s great fun.
Case Study 2

Y was in the first year of his PhD in biology when he joined the project in its first year. He continued to work with the project until the end of 2009 when he passed his viva. He is now working as a Conservation Scientist for the World Conservation Monitoring Centre in Cambridge.

Y decided to get involved with the project because he thought it would enhance his ability to present work to a lay audience and students, and to present it in a different light. He didn’t have any specific expectations of the project before he started. He said the training was very comprehensive and overall very good and very interesting.

Y said the school visit was a good experience. It went as expected, with no hitches, though it was the first time he had tried his activity. He said it was quite a gentle atmosphere and the children were receptive. It was good to do it and a valuable experience. As for the master class, Y said it was the best part of the whole outreach experience. He enjoyed having the time to do something in more detail with more hands-on work. His main recommendation for the project would be that everyone should have a chance to do one. “I definitely got the most out of that part of the project.”

When asked if the project had provided any benefits to him, Y said that it definitely had. It enhanced his communication skills and ability to present research in a different way. It also helped with team working. “The whole project has made me better at presenting and communicating things.” Y said he used the project as an example in the interview for his current job and it went well, and he now uses the skills he developed in the project in his new role. “It’s been a big advantage now as I’m working to disseminate research to policy makers.”

When asked if he would participate in the project again Y responded, “Yes, definitely.” He also said he would definitely encourage others to get involved. He finished the interview by saying, “Good luck getting more funding. I hope it carries on because it’s a really good thing.”

Case Study 3

Z was a postgraduate researcher in Chemistry when she joined the project in its first year. She completed her PhD last year and is now working in the Business Partnership Unit in the School of Chemistry.

Z had already done some outreach work in Chemistry when she was approached by the project coordinator about getting involved with the project. She loved the outreach she had done and wanted to obtain some formal training. She had never worked with 6th form before and was hoping to get some hints and tips. Z said that the training met her expectations. It was well done and she learnt things she hadn’t thought about. She suggested that the safety session could be improved and that making it more interactive overall would help to keep people engaged.

Z said that she really enjoyed doing the activity and going into a college. It was nice to work with older students. They interacted well, had really good questions and were enthusiastic. “It was easier than I expected!” After the school visit, she continued to help with Chemistry outreach and said that it made it much easier.

When asked if the project had provided any benefits, Z said that all outreach helped with confidence, communication and explaining science to anyone.
“I am now working in business development, and I need to explain science to industrial partners. I used this project on my CV. […] People like to see that you got out of the lab and talked to others. In my interview, I had to explain my PhD in 2 minutes to people without chemistry knowledge and I was the only one who was able to do that. Young people are a far harder audience with tougher questions than any adult in the chemical using industry. I use the skills that I learnt through outreach to help communicate and it doesn’t phase me to simplify complicated concepts for different audiences.”

Z said that if given the chance she would participate in the project again and that she would definitely encourage others to get involved. She finished by saying, “It would be a real shame not to have the capacity to do something like this. Development through outreach is so important and, crucially, it helps the university image. Good luck!”

**Case Study 4**

X was a PhD student in Chemistry when he joined the project in its first year. He continued working with the project until March 2009, at which point he started a new job as a Scientific Computing Specialist at AstraZeneca.

X started doing some outreach as an undergraduate, working with the Student Ambassador scheme and helping with chemistry events for secondary schools. He thought the project sounded interesting. “I wanted to develop my science communication skills, I realised that talking to children is much different than communicating with adults. I wanted to see if I could do it. Can I communicate science and get people (children) excited about it?”

X had trouble remembering the specifics of the training but felt it was positive overall. He said that hearing the experiences of an outreach professional and speaking with school teachers were particularly good and useful, while the health and safety session could have been made more interesting and relevant.

X said the National Science and Engineering Week Science Circus was a valuable experience, though some of the students seemed less interested than at the school visits. “It was the first time I did my activity so it was good practice and I was able to tweak it for the school visit.” He also said that this event should be emphasised as a good experience for new project recruits. X participated in several school visits. He reflected that combined classes and clubs were generally more interested audiences than when you just drop into a normal class, and he agreed that the experiences were positive overall.

X participated in one of the project debrief sessions and said, “We reflected on our experiences and what we would do differently. I found it quite useful.” He also commented that attendance was a bit low for the session. He said that he realised that it wasn’t everyone’s thing, but it was really good to have it for those who are interested.

When asked if the project had provided any benefits for him, X replied, “It definitely improved my communication and presentations skills, helped me to create more effective presentations - not too much text, even for a professional audience! It was a good thing to have on my CV and served as a talking point at my interview with AstraZeneca. I’m now a STEMNET ambassador and do outreach as part of my job.”

X said his overall view of the project was positive and it had encouraged him to carry on doing outreach both with the project and at other events in Chemistry. As part of his job he continues to
do outreach, running an interactive stall at last year’s Big Bang Fair and helping with a “science at work” event at the Catalyst Discovery Centre. He said that if given the chance he would definitely participate in the project again and that he would (and has) encouraged others to get involved. He concluded by saying, “It should definitely be continued. It would be good for the university to provide some funding to keep it going.”

Case Study 5
Y joined the project in its third year, while he was completing the first year of his PhD in Chemistry. He is still working with the project as a member of the Steering Group and helping with school visits and other events.

Y got involved with the project because he thought it would be good for his career development. He wanted to learn how to communicate science in a simple way to the public, and to enhance his understanding of communication. He had a lot of expectations for how the course would help him to communicate his science in layman’s terms and to develop transferable skills. He said, “I want to promote science. In my country science is sometimes neglected and I think science should lead.”

Y found that the training was useful, covered a lot of different areas, and was positive overall. He reflected, “I initially though the CRB, etc wouldn’t be useful, but systems are different here and it was good to know what to expect.” He said that the school visit was one of his first experiences in a school setting and he didn’t really know what to expect, but it was excellent.

Y said that the project met his expectations. “It was very rewarding in terms of helping me to communicate. Every time it gets better. I don’t have to spend as much time on reference work. You can’t always anticipate student questions, but I find it easier to answer them now. Now I know how to talk to people. People don’t always need to ask for clarification of what I do after I explain it.”

He also said that it has made him want to do more outreach. He has been involved with additional school visits for the project. He said he helped with the Science Fair in Chemistry this year, leading students, and was much more confident than in the past. He has also become a student ambassador to increase his abilities to interact with people.

When asked if the project provided any benefits to him, Y replied, “I have developed many types of communication skills. It has been fantastic. […] It has helped to increase my confidence. I can talk about my project anywhere I go. I no longer have to hide behind just saying ‘hydrogen storage.’” He also said that it has helped with interpreting and presenting his research data, making it more understandable and accessible. “I can show it to my wife now [who studies a very different discipline] and she can understand it.”

Y said that it’s a good course and agreed that, given the chance, he would definitely get involved with the project again. He said he would definitely encourage others to join the project. He recommended it to a colleague who joined the project this year and is encouraging other members of his lab to get involved.

His final reflection was “I really enjoyed it. Of the courses I’ve attended this is among the most applicable. I want to be an academic so I can’t just focus on one small area of chemistry. I need to tailor what I do to where I want to be. […] I will definitely put this on my CV. It has developed me as a person.”
Case Study 6

Z was a second year PhD student in Biosciences when she joined the project in its third year. She continued to help with the project until she finished her PhD this spring. She recently started a new job as a Flavour Scientist for British American Tobacco.

Z got involved with the project because she was considering going into teaching and thought it would be a good thing to put on her CV. She also wanted to share her love of her topic with a new generation, “I find food science and flavour science really interesting and thought it would be good to introduce that to schools and sort of open the eyes of the students to the fact that there are other areas of science beyond chemistry, biology, and physics.” She said that her expectations were exceeded as the training was really good and she had many more opportunities to work with schools than she had anticipated.

Z said that she really enjoyed the training and thought it was good to have a chance to work with people from different backgrounds. She found it really useful to discuss and get feedback on her activity plans, and really appreciated all the interactive workshops.

Z participated in the National Science and Engineering Week Science Circus. She said, “I found that really good because I did it before the school visit. It was quite a good way of practising my activity, finding out what worked and timings, and there were quite a few groups. It was interesting to see how different the groups were. […] I’m glad I took part in that.” She said the school visit was “really cool” and that the students seemed really interested in what she was doing. She also said it was really good to go to the school and get an insight into how they work. Z helped to organise a master class and found it very valuable, “It was really good in terms of developing myself – trying to organise things within a certain time limit and organising with others, where each activity was going to be based and logistics and then trying to get a lecturer on board to give a talk [project management]. I think it was actually really helpful and I think there was good feedback from that. I am glad that I did it, definitely.”

Z agreed that the project had provided a number of benefits for her. It enabled her to take part in other events, like the Lakeside Children’s Festival. It also gave her the confidence to develop activities and showed her how much work is involved in organising events. She said it helped her to develop time management skills and creativity in trying to make activities more interactive and more interesting. She also developed team work skills, particularly through the master class but also through elements of the training, and communication skills by figuring out ways to explain things to the general public. She learned to gauge an audience and adjust her pitch as needed, “If you say something you can get an idea of whether people are understanding what you’re saying, whether you can take it up a notch or whether you need to simplify it a bit more.” She also agreed that the project helped to develop organisation, management, critical thinking and teaching skills.

Z used the project as an example in the interview for her new job. She also commented that she had thought about teaching as a possible career, and the project made her realise that it is something she might enjoy doing when she’s ready to settle down. Overall she thought the project was good, “I found it very good. It was worthwhile and nice to give something back to the community. It also helped to prove that normal people can do PhDs and makes it seem less scary for school students.” She said that given the chance she would definitely participate in the project again and would encourage more people to get involved. Her final comments were, “It’s a really good thing. I hope you get more funding because it’s beneficial for all involved and can really open the eyes of school kids to research.”
Case Study 7

X joined the project in 2009, during the first year of her PhD. She continues to work with the project as a member of the steering group and contributing to outreach events.

X decided to join the project because a friend suggested it. She liked the idea of going into schools and thought it might bolster her CV. She wasn’t sure what to expect, but was looking forward to a couple of days out the lab dedicated to doing something different. “Too often you’re just doing your own thing in your own little world during a PhD, so it makes sense to have days where you go out and talk to people from other departments and backgrounds. I’d never been to anything like it before so I didn’t know what it was going to be like.”

X said that the two training days were really good. “I really liked learning more about myself and the way that I lean. That’s stuck with me.” She noted that some sessions were a little dry, but she enjoyed the role playing activities and working within groups and teams.

X participated in a National Science and Engineering Week Science Circus event. She said that she really enjoyed it. “It was the first time I had ever done my activity, so it was a good chance to practice and it was good to see that people were interested. [...] It was useful and boosted my confidence that it would work in a classroom situation. It meant I could iron out the little things, like the order of the slides, to make it better.”

X’s school visit was a different experience than most. The lab she was meant to use at the school was unexpectedly unavailable, so she and her visit group had to present to the entire class in a classroom, rather than in small groups. She reflected,

“It was weird to be thrown into that situation where you’re put in the role of the teacher. You’ve got a presentation that’s designed for little groups and then you’ve got to give it to the whole class. It was interesting, and it meant you only had to present once and were done, but it was harder to keep control of the group. My activity when down well and people were interested. [...] Overall everyone seemed to be happy with it.”

X said that both the NSEW event and the school visit were beneficial for her, developing different skills. She found the NSEW event more enjoyable because it was more informal and people asked more questions. “It was nice to have people coming up between sessions and asking questions about my work. I had to think on my feet a little bit more because people were asking me questions throughout.”

X attended a project debrief session. While she found it difficult to remember the details of the event, she said it was useful and she appreciated the opportunity to discuss outreach experiences with other researchers. “It was a nice way to tie it up. It was nice to know it hadn’t just ended at the school. I could voice what happened to me and hear what other people had gone through.” She also mentioned that she made some friends at the initial training days and the debrief session offered a good opportunity to catch up with them.

X helped to design and deliver a summer master class. She said it helped her to develop more management skills, that it required more responsibility, and that it was a really good and useful experience. “When I come out of my PhD I don’t necessarily want to be in academia. I want to have to have more of a role where I’m working with people and we’re achieving things. In terms of looking ahead and future prospects I really feel that this will be something beneficial I can put on my CV and I can say I helped out organising this master class, it was a success and we got really good feedback. It was great.”
When asked if the project had been beneficial to her, X replied that she felt she benefitted quite a lot. “It’s helped me to focus. Sometimes when you do something different and then you come back to your work, it makes you feel a little bit less like you’re just on your own and gives you a little boost to feel like you did something good and you’ve got the results […] You get a feeling of doing something beneficial for somebody.” She also said that the project helped her to continue to develop her confidence, communication and networking skills. “Working with that age group, they can catch you out a little bit and ask you questions and be a bit cheeky. I now feel confident enough in that arena to communicate my science, and to feel like they’ll understand and listen.” She also described how she used the skills she developed with the project at a recent conference:

“I think every time you do a presentation it adds to your confidence. I recently went to the Whiskey Research Institute and had to give my first talk to a mixed audience – some were technical, some weren’t. I had to tailor it so it came in at base level, simplifying the science and explaining it, but also making it interesting and keeping their attention. A lot of the stuff I used, I actually looked back at my school presentation and poached some slides and made some a bit more technical. It was useful to have that experience to work from. […] It really helped knowing I had done something along those lines before.”

When asked if she would do it again, she said yes and that she would recommend it to others. “I keep telling my friends they should do it. I think anybody who feels like they need confidence going into conferences or presentations would benefit and it feels good to know that you’ve done something for the kids.”