

# ChallengeCPD@Bath

## Co-Developing a Public Engagement with Research Module for Doctoral Students

Final report prepared for the University of Bath

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## 1. INTRODUCTION

As public engagement continues to rise up the agenda, driven by UKRI, HEFCE, and the Wellcome Trust and supported by the National Coordinating Centre for Public Engagement (NCCPE), the Public Engagement Unit at Bath continues to be at the forefront of good practice in supporting positive cultures of public engagement. High quality public engagement is central to the work of the Public Engagement Unit. Through UKRI funding they ran the ChallengeCPD@Bath project which critically examined CPD for public engagement. One output of this work was a recommendation to experiment with developing training interventions in partnership with representatives of the intended participants.

As part of ChallengeCPD@Bath, the Public Engagement Unit at the University of Bath worked with three departments/centres, the Doctoral College, and an external consultant to explore training and professional development in public engagement for postgraduate research students, with the aim of co-creating a PER programme for Doctoral Students (DS). It was anticipated that the module would involve a combination of workshops, group work, self-directed activities, e-learning and practical delivery. The final module, having been developed across three departments/centres (Physics, Pharmacy & Pharmacology, and Milner Centre for Evolution), and the Doctoral College, would then be available in a generic form for other departments, centres and Doctoral entities to customise and use.

The project team (academics in the departments/centres and Doctoral Skills Development Staff in the Doctoral College) collectively have experience of developing creative teaching and learning tools, doctoral professional development, understanding the needs of supervisors and departmental leads, and evaluation (formative and summative). The team also has experience of devising and developing highly effective interventions which put the learner at the heart of the experience and utilise innovative combinations of content, formats, practical work and reflections.

Using an iterative, formative approach, the consultant worked with the core team and Doctoral Students from across the three partner departments/centres and the Doctoral College. This work helped to identify core content, preferred formats and issues that needed to be taken into consideration, including the needs of academic and professional services staff. Individual components of the module underwent formative evaluation to ensure they were appealing, accessible, relevant and supporting the intended outcomes. Following summative evaluation, the module was updated in response to feedback and a generic module produced with guidance on how to adapt and use it.

Key deliverables:

- Programme of co-development for the generic module.
- Module Guide for use by DS and/or their supervisors.

## 2. RESEARCH & CO-DEVELOPMENT WITH DEPARTMENT/CENTRE PARTNERS

Before the development process for the module started it was important to understand what training and support relating to public engagement was already offered across the University of Bath. And how we could bring together this wealth of knowledge and experience from across the University and use it when developing the pilot module.

Learning from other organisations and external Public Engagement with Research (PER) schemes/reports was also considered during this formative evaluation process, to inform the possible content and opportunities available.

The scoping exercise involved:

Item	Description	Period
<i>ChallengeCPD@Bath</i> <i>Advisory Board Meetings</i>	Comprising of internal and external advisers. These meetings provided an opportunity to discuss the co-development of the module and gather in knowledge and learning relating to this process.	Nov 2018 - Jan 2019
<i>Module Working Group Meetings</i>	Meeting with the academic representatives from the three departments/centres and Doctoral College to identify key areas they would like to be included in the module, and how learning from the process could shape the module for future use.	Jan - Mar 2019
<i>Public Engagement Unit</i>	What was already offered through the PE Unit and the e-learning courses underdevelopment that would complement this PER programme.	Nov 2018 onwards
<i>CPD Research (Bath)</i>	<ul style="list-style-type: none"> <li>Identifying relevant Moodle courses already available.</li> <li>Meeting with other departments/centres across the University of Bath that might be able to provide support and guidance for DS taking part in the programme.</li> <li>Using learning from the CSCT embedded PER module model.</li> </ul>	Dec 2018–Apr 2019
<i>Further CPD Research</i>	Identify any other relevant learning and opportunities that could support the research and development of the module (e.g. reports/guidance offered through NCCPE, Vitae, Learned Societies, Universities and training and CPD offered by other sectors, existing PER schemes and opportunities etc.).	Dec 2018 onwards
<i>NCCPE Draft Engage Framework</i>	Considering how the development of the module could be aligned with the NCCPE’s draft <i>Engage Framework – Good practice principles for Public Engagement involving universities</i> (in particular the five Guiding Principles: Purpose, People-Focused, Mutually Beneficial, Professional, and Learning).	Dec 2018 onwards

The National Coordination Centre for Public Engagement (NCCPE) Draft Engage Framework (a quality framework for public engagement involving universities) provided a useful starting point, giving good practice principles against which the module could be aligned.

It was important to consider training and other CPD opportunities that supported a wide range of skills and could support the DS in developing their PER practice.

As well as seeking advice and guidance from the Public Engagement Unit (PE Unit) at Bath and ChallengeCPD@Bath Advisory Board during the module development process, it was also important to work closely with the academic leads from the partner departments/centres and Doctoral College.

## 2.1 Co-Development Process - Working with PER leaders from the partner Departments/Centres and the Doctoral College

The working group was made up of representatives from the Public Engagement Unit (Rob Cooper), the Doctoral College (Dr Neil Bannister) and the three participating departments/centres: Physics (Professor William Wadsworth), Pharmacy & Pharmacology (Dr Paul de Bank), the Milner Centre for Evolution (Dr Alex Jeffries), and led by the external PER Consultant (Dr Louise Webb).

### Initial start-up meeting (January 2019)

The initial start-up meeting provided an opportunity for the group to meet and discuss their aims for developing the pilot module, and how they could work together to achieve these.

The session looked at:

<i>Motivations</i>	<ul style="list-style-type: none"> <li>• Why they wanted to co-develop a PER module.</li> <li>• What they wanted to get out of this for their students, department/centre, Doctoral College etc.</li> </ul>
<i>Expectations</i>	<ul style="list-style-type: none"> <li>• What would success look like? And how could this be measured?</li> <li>• How would this be sustainable (post funding)?</li> </ul>
<i>Initial thoughts about content</i>	<ul style="list-style-type: none"> <li>• <i>What did we already know?</i> Were there existing courses/training that was run by their department/Doctoral College/university they wanted to see included?</li> <li>• <i>Identifying the gaps.</i> Initial thoughts about what else could be included, and how this was balanced with the students' wants and needs.</li> </ul>
<i>Roles and Responsibilities</i>	<ul style="list-style-type: none"> <li>• How to structure the development process and making what was needed to be done for everything to happen.</li> <li>• What time commitments were realistic for this?</li> </ul> <p><b>NOTE:</b> A key responsibility from each of the three departments/centres was to identify and recruit up to nine DS to be involved in the co-development of the module.</p>

The main motivations for being involved in co-developing a public engagement with research module were:

- To help to embed a culture of public engagement with research.
- To broaden the number of staff and students involved in PER.
- Stakeholder engagement (understanding ways to engage with patients, clinicians, policy makers etc.).
- The Research Excellence Framework (REF) – impact.
- Doctoral Students (DS) developing transferrable skills.
- Extending what PER and outreach the department/centre does.
- Finding ways to support more DS to do PER.
- Extending the reach of the department/centre.
- Fits with the Researcher Development Framework (RDF).

There was a concern, however, about how much time this process would take and how this would be managed alongside their existing commitments. It was agreed that the departmental/centre representatives would take the responsibility of identifying and recruiting up to nine DS for the pilot module. Their roles would then be in an advisory capacity throughout the rest of the project.

### Second working group meeting (March 2019)

The second meeting focused much more on the possible content to be included and seeing how well the recruitment of DS to the pilot module was going.

The session looked at:

<i>CPD research &amp; questions</i>	<ul style="list-style-type: none"> <li>• <i>What do you already have?</i> What training opportunities did they already have inside the University, within their department and outside for DS (also considering what is offered to undergraduate students).</li> <li>• <i>What do you want to do, that you haven't done already?</i> Any training, opportunities or development tools that they hadn't been able to use, but would like to include.</li> <li>• Did they want the module to consist of things they already had or to build new resources/materials? Or a mix of both?</li> <li>• <i>Assessment?</i> Did they want the option to assess the module? This could be an optional part of the module.</li> </ul>
<i>Options for Doctoral Module</i>	<ul style="list-style-type: none"> <li>• Reviewed a series of options for module structure and discussed which would suit the departments best (based on the current CPD research and experience from CSCT module model).</li> <li>• Started thinking about slotting in existing training opportunities and what new opportunities might be needed.</li> <li>• Timescales for module.</li> </ul>
<i>Objectives</i>	<ul style="list-style-type: none"> <li>• Decide on objectives for the module.</li> </ul>

To help start the development process the consultant used an example of a DS PER module alongside the CPD research to introduce possible content, timetabling and module structures.

### ***Centre for Doctoral Training (CSCT) Compulsory PER Module***

The model used was from a compulsory PER module programme that had been developed for the Centre for Sustainable Chemical Technologies, an EPSRC funded Centre for Doctoral Training at the Dept. of Chemistry (by the Training Group, a partnership between Graphic Science Ltd and science made simple). The consultant had worked on the development and delivery of this module during the two EPSRC CDT funding periods (until 2018), whilst working for Graphic Science as a Training & Project Development Consultant. Funding for this compulsory assessed module was included in the overall funding bid to EPSRC for the CDT, in order to allocate enough resource to help embed a culture of PER within the centre.

As part of the CSCT PhD programme, all DS were expected to attend and complete this module as part of their first year of studies, and were unable to transfer to their second year if it was not completed. This was included in the programme specifications as part of the PhD recruitment process (so all students applying for a PhD were fully aware of this expectation). See *Figure 1* for a summary of the CSCT PER Module (running up to 2018).

The ChallengeCPD module differed in terms of it being an optional, unassessed one. It also did not have the level of budget available to bring in large numbers of external experts as the CSCT model did. (The CSCT module received a significant annual budget to pay for the coordination and delivery of the programme by The Training Group, and for external experts for the Summer School). However, the timetabling and types of content covered provided a useful starting point to help plan the pilot model for the three departments/centres.

### ***CPD Research – What the University of Bath already offers***

Looking at existing relevant CPD opportunities available at the University of Bath was also important, not only because of the smaller budget available to the working group, but also to build a clear picture of what had already been developed, and where possible gaps in training would need to be filled.

### ***Draft structure for a co-produced PER Module***

From the discussions at the meeting it was agreed that the module should be based on a combination of existing learning/CPD and new content, and contain: *core* elements (group) that all the students should participate in, and *optional* (individual) elements that supported each student's interests. It would be an evolving structure shaped by what the students wanted and needed in order to develop their PER. However, to start the process a draft structure was required to help 'sell' the module to potential DS and their supervisors.

The partner departments/centres all said that it had been challenging trying to recruit students to the pilot module, and explain what it would involve in terms of time commitment to DS supervisors, when there was no structure at all. So there needed to be something in place to explain what it would involve, without it being so rigid that the DS were then no longer part of the co-development process.

Figure 1: An overview of the CSCT CDT Compulsory PER Module (to 2018)





The working group identified core elements and other possible areas that would support PER activities e.g. DBS checks, careers planning, health & safety, self-reflection, peer to peer support etc. A draft structure was agreed, with an estimated timeline (see *Figure 2*).

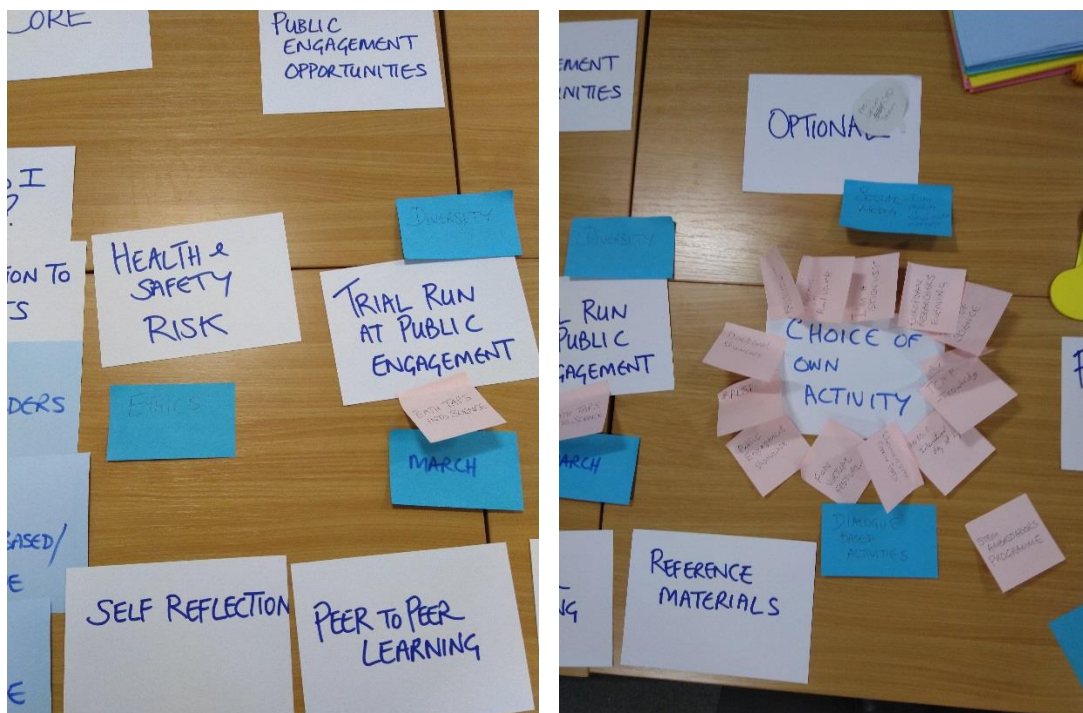
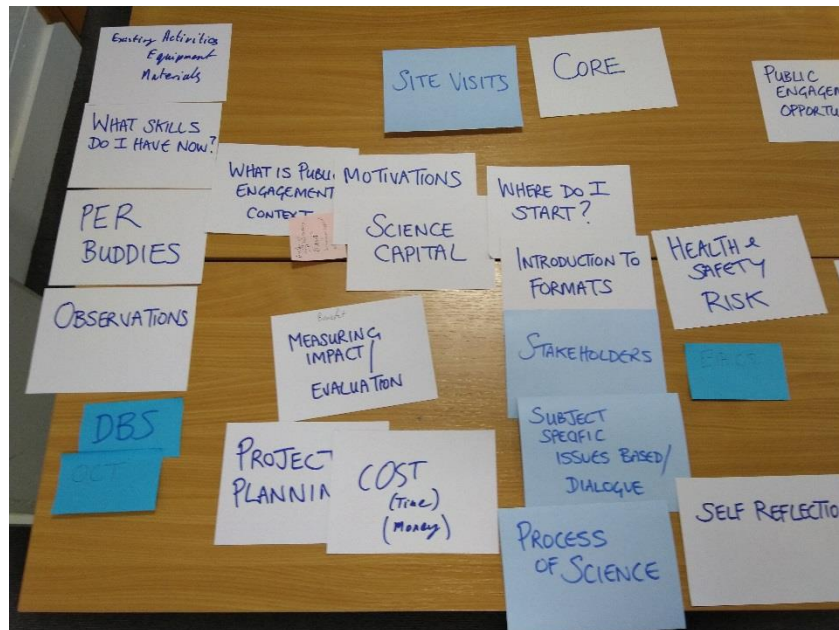
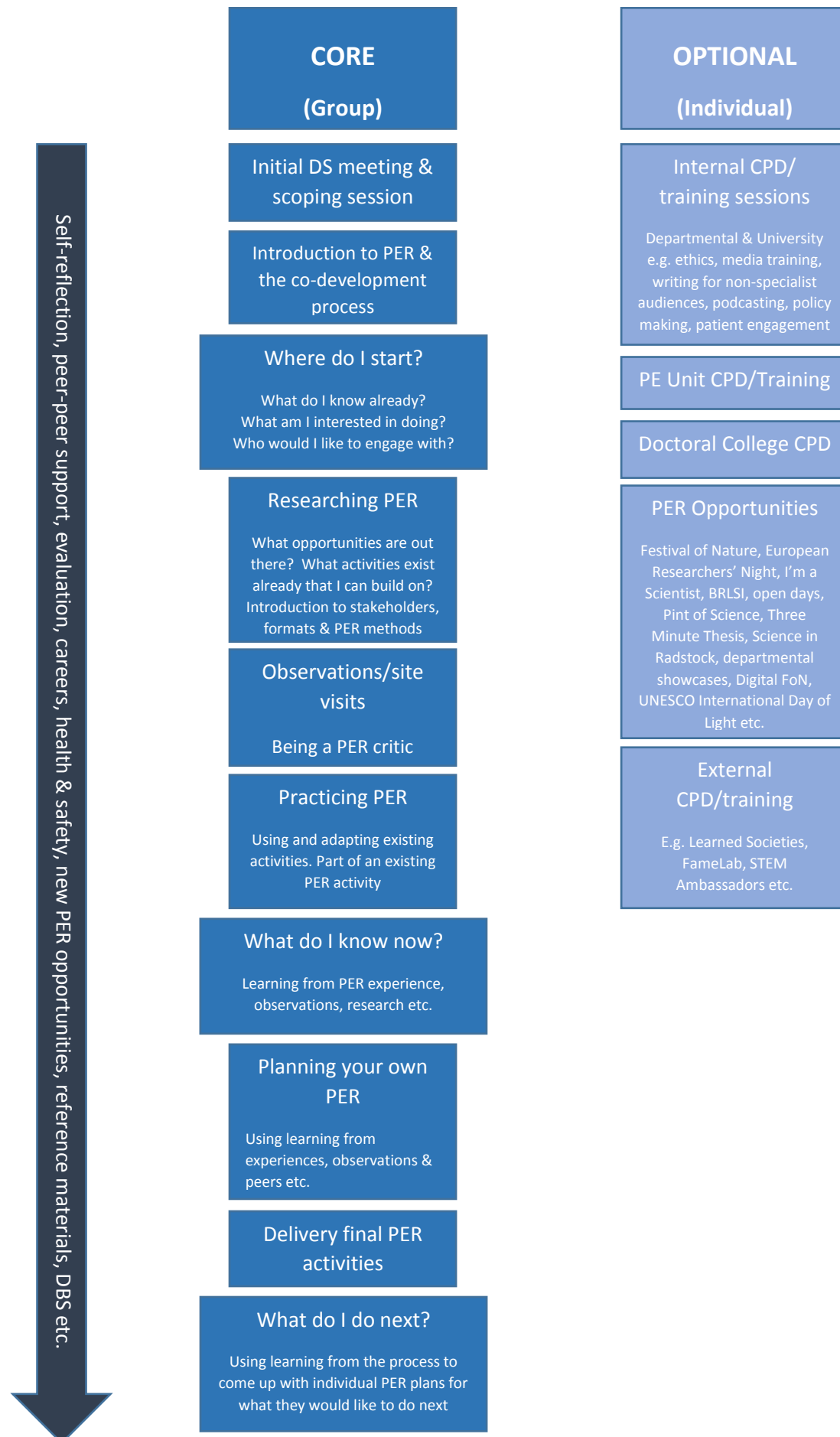


Image 1: Photographs of content development process

**Important note:** due to the timescales of this project, and not having all students recruited to take part at this stage, the timetabling was not ideal e.g. it was starting later in the academic year (March onwards with the hope it would be completed by the end of the year). For future use it was suggested that it should run from late autumn/winter to be nearer the start of new intakes of DS until the following summer.

Figure 2: First draft structure for ChallengeCPD module



## 2.2 CPD Review - Identifying possible module content

Running alongside the meetings with the working group a review of existing CPD offered through the University was carried out. The aim of this was to identify any relevant training and CPD opportunities that could form *core* and *optional* elements of the PER module programme, and any useful self-assessment tools for identifying skills gaps (relating to PER).

The following table summarises what research was carried out at the University of Bath:

Source	Type of CPD/Training support offered
<i>Public Engagement Unit</i>	<ul style="list-style-type: none"> <li>• Choose your own training – funding call.</li> <li>• PER Funding schemes.</li> <li>• CPD sessions linked to specific PER activities e.g. European Researchers Night.</li> <li>• e-learning (new Public Engagement Knowledge Hub).</li> <li>• One to one support.</li> <li>• PER opportunities e.g. Bath Taps, Bath Festival of Nature, Digital Festival of Nature, FUTURES European Researchers' Night etc.</li> </ul>
<i>Moodle course units</i>	<p>Review of training developed by a number of departments at Bath and offered through Moodle provided several possible options:</p> <ul style="list-style-type: none"> <li>• Practice of Science (Dept. of Biology &amp; Biochemistry)</li> <li>• Communicating Maths (Dept. of Mathematical Sciences)</li> <li>• Making &amp; Communicating Policy (Dept. of Social &amp; Policy Sciences)</li> <li>• Reflective Writing Project (Academic Skills Centre)</li> <li>• Presentation Skills (School of Management)</li> <li>• Team Working &amp; Communication (School of Management)</li> <li>• Presenting Your Research (Postgraduate Skills Training)</li> <li>• Public Speaking (Dept. Politics, Languages &amp; International Studies)</li> <li>• Biological Ethics (Dept. of Biology &amp; Biochemistry)</li> </ul>
<i>Undergraduate PE modules</i>	<ul style="list-style-type: none"> <li>• <b>Engaging the public in chemistry research</b> (Dept. of Chemistry) Unit leader Dr Gan Shermer</li> <li>• <b>Public Engagement</b> (Dept. of Pharmacy &amp; Pharmacology) Unit leader Dr Sarah Bailey</li> <li>• <b>Communicating Physics</b> (Dept. of Physics) Unit leader Dr Fran Laughton</li> </ul> <p>Dr Gan Shermer led a successful TDF bid in 2014 for undergraduate Public Engagement in the Faculty of Science with Dr Fran Laughton and Dr Sarah Bailey. The funding paid for a postdoc chemistry graduate (with teacher training) to develop shared resources (and tutor lesson plans) so that these could be picked up and delivered by other research staff (with some understanding and awareness of PE).</p> <p>All course leaders work closely together and were happy to share learning and content from their course units. Each formerly assess the units and award credits towards their undergraduate degrees (Chemistry have a full '12 credit' S2 unit, Pharmacology has a '6</p>

	<p>credit' optional S2 unit (so it fits with Bath TAPS) for final year Pharmacology students, and Physics have an all year version).</p> <p>The course units use a combination of:</p> <ul style="list-style-type: none"> <li>• Taught sessions (workshops, seminars etc.)</li> <li>• e-learning</li> <li>• Peer to peer learning</li> <li>• Practical engagement experiences             <ul style="list-style-type: none"> <li>○ Practice sessions with a predefined audience e.g. We The Curious, Bath Taps;</li> <li>○ Students planning and delivering their own activities for particular target audiences (which they pitch in a 'Dragon's Den' style activity to an expert panel for feedback, before delivering these).</li> </ul> </li> <li>• Self-reflection/reflective writing</li> <li>• Formal assessment through reporting &amp; e-portfolios.</li> </ul>
<p><i>Doctoral College</i></p>	<p>The college offer an extensive selection of training, online learning and CPD opportunities for DS through their DoctoralSkills Programme, which are linked to the Vitae Researcher Development Framework (RDF). The support is organised around the four RDF Domains:</p> <ul style="list-style-type: none"> <li>- <b>Domain A: Knowledge &amp; intellectual abilities</b> The knowledge, intellectual abilities and techniques to do research.</li> <li>- <b>Domain B: Personal effectiveness</b> The personal qualities and approach to be an effective researcher.</li> <li>- <b>Domain c: Research Governance</b> Knowledge of the professional standards and requirements to do research.</li> <li>- <b>Domain D: Engagement, influence &amp; impact</b> The knowledge and skills to work with others to ensure the wider impact of research.</li> </ul> <p>Met with Dr Neil Bannister (member of the ChallengeCPD Advisory Board, module working group and through separate content research meetings) to discuss: possible content suitable for the module; opportunities to engage people with their research e.g. Three Minute Thesis &amp; BRLSI workshops with young people; self-assessment/skills audit tools and peer to peer learning.</p>
<p><i>Centre for Learning and Teaching</i></p>	<p>Support staff in the delivery of high-quality learning and teaching and facilitate the career development of staff who teach and research.</p> <p>Met with Dr Andrew Pitchford (member of the ChallengeCPD Advisory Board) to discuss what other training and CPD sources and providers there might be through the University of Bath. Discussed peer to peer learning and self-assessment/skills audit tools.</p>

<i>Academic Skills Centre</i>	<p>The Skills Centre, through its Academic Skills Programme (ASP) provides academic skills support across the University, running courses, workshops, one to one support and drop-in sessions.</p> <p>Worked with Dr Diana Hopkins to identify existing sessions that could be used as part of the core module programme. And also to develop a new session specifically for the module.</p>
<i>Careers Service</i>	<p>Career planning support, skills training and guidance appointments for research staff and students.</p> <p>Met with Dr Anne Cameron (Researcher Careers Development Adviser) to discuss how a careers element could be incorporated into the module programme e.g. <i>Career planning timeline for postgraduate research students</i> tool, opportunities for one to one sessions, workshops available etc.</p>
<i>Other possible training and CPD opportunities at Bath</i>	<ul style="list-style-type: none"> <li>• Press &amp; PR e.g. working with the media</li> <li>• Digital Marketing &amp; Communications e.g. social media training</li> <li>• Public Involvement in Health Research (Dept. of Health)</li> <li>• Widening Participation</li> </ul>

All of the PER CPD research was fed into the co-development process and used to inform the draft structure which was used to help recruit DS to the pilot module, and act as a skeleton structure that would be built upon using the different wants and needs of the DS (and also departments/centres involved). See *Figure 2*.

### 2.3 Co-development process – starting to work with the DS

Each department/centre worked hard to recruit up to nine DS to help co-develop the module. Although a draft structure was now in place, it was still not easy to promote this as many DS wanted more detail about what it would entail in terms of: content, level of time commitment and the expectations on them in terms of their input to the development process. However, by the introductory module meeting (held at the end of March) seven students had been recruited (Milner Centre = 3, Pharmacy & Pharmacology = 3 and Physics = 1). These were also at different stages of their PhD programmes (first year through to final year).

#### Introductory module session

The introductory session took place at the Milner Centre where the DS were introduced to each other and given an overview of the module and the co-production process. This was also an opportunity for the DS to ask questions and raise any concerns about being involved; to discuss timetabling of future sessions; and how best to communicate with the group about this at this stage (it was agreed to do this via e-mail).

A number of students stayed after the main session to ask about the module. Some were unsure what the expectation would be in terms of time, especially as this was an additional activity and not part of their main PhD programme. Others wanted to know if there was any formal assessment or certificate at the end of it (which would help in terms of their CV and also with requesting time away from their research to do this). Although most seemed happy with it not requiring formal assessment.

After the initial meeting, however, one student (from Pharmacy & Pharmacology) decided it would be difficult to fit around his research and placements so left the module.

### **3. STUDENT CO-DEVELOPMENT & THE DELIVERY OF THE PILOT MODULE**

Producing the module was a dynamic process that was influenced by the needs and feedback from the DS. Using a starting skeleton structure, core sessions introduced different aspects of PER to the DS, but were also used to help identify areas of interest and skills and knowledge they would like to develop.

The module involved a combination of different types of activities:

- Workshops
- E-learning and post session tasks e.g. research, observations, planning exercises.
- Surgery style sessions (face to face & by phone)
- Peer to peer support and learning (coffee & catch up sessions)
- PER opportunities (e.g. European Researchers night)
- Recommended courses (available through the University Bath and externally)
- Resources
- Reflective practice
- Other training

After the first meeting with DS in March, the consultant worked with the group to identify a suitable date for the next session, and also the best ways the DS could communicate with each other and meet outside of the main sessions (facilitating peer to peer support). Finding dates where all six DS could meet was difficult as each department/centre had different demonstrating times, placement dates and other training courses as well as their usual research commitments. Not all students could make a date in April or May, but it was decided to go ahead with a workshop in May where five were available (so not to delay the module any further) and arrangements made with the other student to meet separately.

#### **3.1 Workshop Sessions**

As part of the core content of the programme a number of workshop sessions were run for DS to help support the main skeleton structure of the module.

##### **Workshop Session 1: Why do PER? And what do we know already?**

The purpose of workshop session 1 (May 2019) provide a starting point for all the DS to share their existing knowledge and experience relating to PER. The DS were then given an overview of PER and the change from 'Public Understanding' to 'Public Engagement', and reasons to engage people outside of the University with their research.

During the session it became apparent that half of the students already had experience of doing PER at Bath e.g. Pint of Science, social media, and engaging with schools through outreach programmes. With the other half having not previously been involved in any PER before. There were also very different interests in the types of audiences that they wanted to engage with. Many were motivated to engage with young people to help raise aspirations in science and raise awareness of what it is like to be a DS doing research, as well as about their research areas. Others only wanted to engage with adult audiences who they could have more in depth conversations with and debate particular issues relating to their research.

## **Summary of Workshop Session 1 - Why do PER? And what do we know already?**

Workshop session 1 covered:

- *What do we already know?*  
Sharing their knowledge and experiences of PER so far.
- *What is Public Engagement? And why do it?*
  - Introduction to the shift from public understanding to public engagement.
  - Reasons to engage: using the Public Engagement Triangle & Public Engagement Onion models (e.g. transmit knowledge, receive knowledge & collaborate with others).
  - NCCPE Quality Framework for Public Engagement.
- *Being clear about your purpose for doing PER*  
Reflecting on their own motivations for doing PER. (Making reference to the Vitae 'The Engaging Researcher' guide).
- *Public Engagement with...?*
  - Who do you want engage with and why?
  - NCCPE Impact diagram (ways of considering different audiences types for things like the REF etc.).
  - Introduction to Public Attitudes surveys and concept of Science Capital.
  - Researching your audience (and understanding their motivations and interest).
- *Reflecting on your PER skills and practice*
  - Why reflect?
  - Assessing your skills.
  - The Vitae Researcher Development Framework (RDF).
  - Conscious Competencies (where am I now in terms of my PER skills?).
  - Learning from each other (importance of peer to peer learning).
- *Thinking about the co-development process*
  - Developing the module timeline.
  - Overview of core module sessions.
  - Using reflective practice (DS to think about the best way to capture and record what they do e.g. reflective diaries, blogs etc.).
  - Activities and PER opportunities e.g. Festival of Nature (Bath, Bristol & Digital)
  - Identifying personal training needs.
  - Online work space and communication?
- *Where else to get support*  
Places within the University of Bath and outside where DS could find resources, information and advice, including links to career development and other CPD opportunities.
- *What next?*
  - Doing your research task set – Being a PER critic.  
Learning from observing others. Reflecting on experiences as a member of the audience.
  - Date for next sessions.

### **Scheduling of other module sessions**

Communication with the group was discussed again and it was agreed to continue using e-mail as the main communication method. All of the students had very different preferences for online workspaces e.g. GoogleDrive, Slack, MS Team etc. This was an area that the consultant would investigate further and try and find an agreement over the best way for sharing resources etc.

It was suggested that one DS become the main point of contact for the group to help facilitate booking in further core module sessions, feedback any ideas, questions or concerns about the module, and arranging regular coffee and catch up sessions so they could maintain contact as a group, and help facilitate a feeling of a module community.

Scheduling of sessions was carried out through using Doodle polls.

### **Workshop session 2: Public Engagement - Writing a critical review: Reflective Writing**

The consultant worked closely with Diana Hopkins from the Academic Skills Centre to identify workshop sessions and materials that could be adapted for use with the module students.

Based on feedback from the DS and the draft module structure, content for workshop 2 was identified to help support reflective practice and also learning from other PER. The *Public Engagement - Writing a critical review: Reflective Writing* session was adapted from one that was delivered to undergraduate public engagement module students e.g. similar to part of the undergraduate Chemistry PE module, and took place in June 2019.

The purpose of the session was to start the students thinking about how to reflect and learn from other PER they observed. The aims of the workshop were to:

- Consider the importance of reflection in learning and developing as a communicator of science (also show how it can impact on research as well as PER).
- Consider what reflective writing involves.
- Identify successful tone and style for academic reflective writing and PER.
- Create a flexible framework for reflective writing in a researcher's context and in relation to PER.

At this stage of the PER module one other DS (Milner Centre) withdrew from the module as they were no longer interested in taking part, and wanted to focus more on their research. They would prefer to take part in PER opportunities as and when they were able to do so rather than being part of a module.



## **Summary of Workshop Session 2 - Writing a critical review: Reflective Writing**

Workshop session 2 covered:

- *What is reflection?*
  - What does it involve?
  - Looking at different models of reflection.
- *Reflection in action and reflection on action*
  - Reflecting on your experience.
  - Questions to help with the reflective process.
- *Your reflections and what you value*
- *Reflective thinking is a transferrable skill*
  - Feeding into developing your research skills and as a researcher (RDF).
- *Why do reflective writing?*
  - How reflective writing can support better research skills. (Helping to develop other skills as a researcher and for doing PER).
- *What does reflective writing involve?*
  - Reflecting on past experiences.
  - Considering how and why you do things.
  - Examining beliefs, values, attitudes and assumptions.
  - Reflecting forward using learning and past experience to think about what you do next and how to do it.
- *Examples of PER reflections*
  - Analysing and discussing different reflective writing.
- *Why write it down?*
  - Benefits of reflective writing.
- *Features of reflective writing*
  - Differences compared to academic writing (considering different styles).
  - Developing a critical voice.
- *Developing your own reflective practice*

## **Workshop session 3: Public Engagement - Communicating with different audiences**

Again using feedback from the DS and the draft module structure, content for workshop 3 was developed with Diana Hopkins (Academic Skills Centre) around communicating with different audiences (and also using the DS PER observations experiences). The aims of this workshop were to:

- Consider what different audiences you need to be able to communicate with.
- Consider the key differences between the language used with these different audiences.
- Learn how to do a discourse analysis to inform our own communication.
- Practise adapting texts for different audiences.

Scheduling this session in over the summer period was difficult due to other DS commitments (conferences, other training courses, placements, holidays etc.), so eventually ran during September 2019. Even with a lot of effort to book the workshop in at a time when all remaining DS could attend, only three DS attended on the day. (One was unable to attend as they were delayed by their research experiment and the other DS had to go to another meeting).

### ***Summary of Workshop Session 3 - Communicating with different audiences***

Workshop session 3 covered:

- *What audiences will you communicate with?*
  - Considered what different audiences they might communicate with.
- *Tailoring the explanations and engagement to different audiences*
  - Key differences between the language used with these different audiences (using appropriate language to pitch activities at the right level).
- *The words you say and how you say them*
  - Learned how to do a discourse analysis to inform your own communication.
- *Examples of different texts and the language and style used for different audiences*
- *Analysing texts*  
Comparing five texts about the same science (layout, language and images used).
- *Considerations before creating text*  
Using a staged approach to developing your texts.
- *Adapting texts for different audiences*  
Written exercise using an academic article to rewrite as an extract from a:
  - Blog post
  - Tabloid newspaper
  - Children's video transcript

After this session the students were asked to reflect on their experiences so far, the audience(s) and types of engagement they were interested developing, and then suggests dates to meet with the consultant to start planning their own PER activities.

One student (Milner Centre) was due to go on a placement in Australia as part of her research shortly after workshop 3, so had to drop out the planning process at this stage. But hoped to rejoin the group on her return. Another DS was no longer able to take part due to starting to write up his PhD thesis.

### **3.2 E-learning and session tasks**

To complement module workshops, e-learning activities and tasks were also set as part of the programme (based on the draft structure and using input from the DS). It was important to use other learning methods in addition to the face to face sessions due to the time pressures on DS (allowing them to do tasks in their own time around their research and demonstrating commitments etc.) and challenges of timetabling across the three departments/centres.

E-learning and session tasks included:

Task	Purpose of exercise
<i>Doing your PER research</i>	<p data-bbox="549 259 1114 293"><i>Learning from other engagement activities.</i></p> <p data-bbox="549 338 1302 409">This exercise asked DS to reflect on their experiences as a member of the audience e.g. becoming ‘a PER Critic’.</p> <p data-bbox="549 454 1407 719">DS were encouraged to go out and see as many different types of PER as they could (different formats, audiences and also engagement with public audiences that was away from PER). Using some guidance questions they were then asked to reflect on events and activities, and critique them in a constructive way to draw out what was effective and less effective for engaging with different types of audiences.</p>
<i>Observing audiences</i>	<p data-bbox="549 763 1398 835"><i>Learning from how different types of audiences react to different types of engagement format, environment and content.</i></p> <p data-bbox="549 880 1390 1111">Using a set of guidance notes to help observe the behaviours of different types of audience at a variety of PER events and activities, considering: people, places, levels of interaction, design of space, what they actually observed versus questions it raised (taking care not to make too many unevidenced assumptions) etc.</p> <p data-bbox="549 1155 1394 1263">Events in Bath and surrounding areas were suggested to DS e.g. Festival of Nature, FUTURES 2019, and half-term activities at We The Curious science centre.</p>
<i>Planning PER</i>	<p data-bbox="549 1312 970 1346"><i>Developing individual PER plans.</i></p> <p data-bbox="549 1391 919 1424">This took part in two stages:</p> <ul data-bbox="596 1429 1385 1671" style="list-style-type: none"> <li data-bbox="596 1429 1385 1615">- Identifying the type of audience they wanted to engage with and how they wanted to engage them (being clear on their motivations, purpose etc.). Then using planning tools and evaluation guidance to create their own plans with timelines.</li> <li data-bbox="596 1637 1385 1671">- Reviewing the plans with their peers and the consultant.</li> </ul> <p data-bbox="549 1686 1214 1720">Applying for their own PER funding as appropriate.</p>

Learning from seeing other PER was really important part of the module for DS see what worked well and what didn't, but also to encourage them to think about how they could constructively critique what each other did (peer to peer learning). All of this experience and knowledge was then used when starting to develop their own project plans.

The DS were also encouraged to go out to public engagement events away from PER, and to try to learn from other how sectors approached this e.g. Bristol Open Doors Festival - celebrating the past, present and future of Bristol through a programme hands-on workshops, talks and expert-led tours (working with architectural and engineering firms and resident Bristol historians). There was also the opportunity for DS to apply to become volunteers at the festival.

### **3.3 PER surgeries and one-to-one sessions**

As well group workshop sessions, the students were also keen to have time where they could talk through other PER ideas and training needs. It was agreed at the start of the module that this would take place using a number of different methods e.g. by e-mail, phone and Skype. This allowed DS to raise any concerns and ask questions throughout the period of the module.

Based on the broad spectrum of experience and PER interests, the DS were also offered surgery/one-to-one sessions with the consultant to help with developing and planning their own PER ideas. Half of the students took up this opportunity, but not all of them did as they were happier being part of an organised group activity (and did not feel they needed this type of support).

DS were able to work with the consultant to identify existing skills and experience that could support their PER, look in more detail at their motivations, and the types of PER they were interested in pursuing.

Half of the students had come to the module with no previous PER experience, so some were concerned it put them at a disadvantage, and that they might be expected to 'catch up' with those who already had some PER experience. Surgery sessions at the start of module proved invaluable, allowing the consultant to address these concerns. It also enabled them to talk through other skills and experience that was relevant to doing PER. A good example of this was one DS who didn't think she had much to share with the other DS students because of her lack of PER experience but, in conversation about her interests and others skills, she revealed she had a lot of experience working with children through her volunteering at a local youth group. After realising this was relevant and valuable experience, it gave her the confidence to share this with the other DS interested in engaging young people with their research. It also helped highlight other possible engagement routes for reaching young people away from the usual schools route.

Surgery sessions also allowed the optional elements of the module to be tailored to fit with an individual's own ideas, needs and interests. It gave them time away from the group to reflect on their learning and progress, and to be able to voice any frustrations or concerns. From these sessions the consultant was able to provide them with specific guidance and signposting to relevant resources and PER opportunities.

A number of opportunities the group had investigated were related to events with young people and family audiences. But not all of the students wanted to engage with these groups, preferring to look for routes to engage with adult audiences. One DS in particular was not interested at all in engaging with children. Through a surgery session it enabled them to talk through their motivations and interests in reaching adult groups instead, and also come away

feeling it was 'OK' not to want to engage with children. The consultant then worked with them to find events and activities that were more suited to their interests.

Although the DS were encouraged to challenge themselves in order to develop their confidence and PER knowledge and skills, it was also important they were reminded that they did not have to try and engage with 'everyone'. And the importance of taking time to reflect on what they really were interested in doing and why (encouraging them to think more strategically about the type of PER they did, and being clear about their motivations and the purpose behind it).

### **3.4 Peer to peer support and learning (coffee & catch up sessions)**

As well as spending time with the consultant, it was important to try and develop a sense of 'community' amongst the students to build relationships between them across the departments/centres, and to facilitate peer to peer learning.

As the DS were across three different departments/centres they did not come into contact with each other often (even DS from the same departments/centres did not always see each other regularly), there needed to be opportunities for them to meet in addition to scheduled module sessions. This contact was key to the DS getting to know each other and to help develop good working relationships. The consultant suggested that the group arrange short, but regular 'coffee and catch-up' sessions (30 - 40minute sessions) so that they could meet informally in between the other face to face sessions. The DS were responsible for organising these as a way of encouraging them to shape the sessions to fit in with all their other commitments. It was hoped that by the DS taking ownership of this, along with any online discussion platforms they chose to use to communicate with each other, they would feel a sense of ownership and maintain regular contact with each other.

Rather than just a general catch up for the DS, the consultant suggested that each session have a theme to encourage each member to share some of their own experiences and ideas for PER e.g. volunteering with youth groups, coordinating Pint of Science events, and using digital platforms to engage with different audiences.

These sessions initially began well and took place every two to three weeks, but as the year went on similar issues with timetabling meant that these became less frequent, as finding days and times that everyone could meet was not easy. DS started to meet less as a whole group, but more with ones who had PER common interests.

### **3.5 PER opportunities – places to practice and develop PER experience**

#### **Group PER opportunities**

Throughout the module the DS were encouraged to observe PER activities, but also find opportunities to take part in ones too (both as a group and as individuals). As there was a broad range of experience amongst the group it was suggested that they could start by working with members of the Milner Centre through their stand at the Festival of Nature in Bath (June). However, only a few students ended up attending and did not participate in activities as much as they could have.

Some of this was due to confidence (not feeling they could take part because it wasn't their subject area), others weren't as keen on this type of event, while others were away during that period. Other opportunities were identified for the group to work together to do PER.

Opportunities promoted to the group included:

- *Festival of Nature in Bristol*  
Providing alternative dates in June for DS. No students took part.
- *Digital Festival of Nature*  
One student took part in this event.
- *FUTURES 2019*  
DS were encouraged to attend training sessions linked to this European Researchers' Night event, and also take part in planned activities. No DS took part in this.

Although the DS were provided with a number of different opportunities to work together, translating the opportunity into actual activity proved difficult. With the module not being compulsory, or requiring formal assessment, different approaches and incentives were required to try and get the DS more involved.

Because of the diverse range of research backgrounds many saw this as a problem when trying to develop a group activity. One approach, under investigation, is to remove the subject from the engagement and focus more on the types of skills DS need to develop to become effective researchers.

### **Co-development of PER activities with We The Curious**

Due to the diverse nature of the research areas each of the students came from many found working on a group PER activity challenging, so alternative ways to work together needed to be found.

Using learning from developing ChallengeCPD@Bath PER self-assessment tools, and interests and experience at We The Curious science centre in Bristol, a new type of PER method has been proposed: 'People Centred Programming' (to be co-developed by the consultant, We The Curious and DS).

### ***People Centred Programming – a new approach to PER***

People centred programming puts aside the hierarchy of traditional public engagement with research and asks all our participants to share their stories, values and expertise to overcome a common challenge.

Team members will need to work together and share their skills, resolve problems and overcome challenges. These challenges will be developed to explore skills vital to research but are common across a broad range of life experiences. Skills that are traditionally thought of as research skills will take on new perspectives, broader life skills will be developed.

Researchers will then be able reflect on the range of skills that add value to their work, whilst audience participants will celebrate life skills that have value in research as well as in fuelling their curiosity.

*How this fits with Open Source Science for We the Curious audiences:*

- Provides a format that once developed facilitates face to face interaction between any researcher and any visitor group.
- Provides opportunities to explore research skills and broader life skills with both researchers and audience input is valued equally.
- Allows us to engage with range of researchers without developing new topic specific content with every new research area (this is done elsewhere in the OSS programme).
- Opportunity to increase the frequency of face to face interactions between researchers and visitors.

This would lead to a co-developed fun interactive challenge experience for researchers and audiences.

*How this fits with ChallengeCPD and PER:*

- Provides an opportunity for researchers from a variety of backgrounds to work together to engage the public.
- Provides the module researchers with an opportunity to engage with We The Curious audiences (in a safe, facilitated environment that does not require too much time to plan and take part in).
- Will lead to a flexible engagement resource that can be adapted and used by both the University of Bath and We The Curious.
- Developing a different approach to engaging people with research (through the skills and values of researchers and how that can influence their work, rather than subject specific activities). Engaging people with the process of research and related skills.
- An opportunity for researchers to use a practical PER activity to help them challenge their own thoughts and understanding of their skills and values. (That can be linked back to the self-assessment tools and CPD opportunities at Bath).

*Possible format:*

The starting point for discussion used the 'Escape Room' concept, where participants (researchers and public) would work together through a series of activities to try and solve a challenge. This could be based around one or more key skills that researchers use every day, but also be facilitated by We The Curious staff (so that the researchers truly are participants).

**Individual PER activities**

As well as encouraging the group to develop joint activities, the consultant worked with the DS to also identify possible schemes and activities tailored to differing individual interests and needs.

PER opportunities suggested to fit with particular DS interests and needs were:

Audience of interest	Possible engagement opportunities
<i>Young people</i>	<ul style="list-style-type: none"> <li>• BRLSI workshops</li> <li>• STEM Ambassador volunteer scheme</li> <li>• I'm a Scientist</li> <li>• Nuffield Research Placements</li> <li>• Young Researchers' Programme</li> <li>• Big Bang Fair (nation &amp; local events)</li> <li>• The Ogden Trust</li> <li>• Learned society activities</li> <li>• Uniformed groups e.g. local Scouts and Guides</li> <li>• Widening Participation (Bath)</li> <li>• Young careers engagement project (through Caroline Hickman, Dept. Social &amp; Policy Sciences at Bath)</li> </ul>
<i>Adult audiences</i>	<ul style="list-style-type: none"> <li>• Pint of Science</li> <li>• Learned Society activities</li> <li>• Bristol Sci Comm Social</li> <li>• Bristol Science Film Festival</li> <li>• Science Cafés</li> <li>• Music festivals e.g. Green Man</li> <li>• Science stand-up</li> <li>• We The Curious 'Lates' (adult events)</li> </ul>

Students had also been proactive in seeking out their own opportunities e.g. taking part in open day activities, visiting research colleagues in Exeter and observing their public engagement activities, Natural History Museum public events, and planning a possible Blog for the PE Unit or their department/centre.

### **Application for PE Unit PER funding**

One student (from Pharmacy & Pharmacology) submitted PER grant applications to the PE Unit to fund the development of a project working with youth groups. The consultant had offered to go through her application with her, but she wanted to try submitting it on her own in the first instance. Although she was unsuccessful on this occasion she was proactive in seeking feedback. She is now using this to restructure her PER plans, and is also using feedback from her peers and the consultant. She hopes to rewrite and resubmit her applications when a new funding call opens.

This DS was one of the least confident members of the group in terms of doing PER at the start of the module. Through observing others, engaging with her peers and taking part in module sessions she showed a significant change in what she felt able to attempt. This led to her submitting PER funding bids, but also starting to organise other catch up sessions with the other DS.



### **3.6 Other recommended courses (available through the University Bath and externally)**

Throughout the module the DS were encouraged to consider and select other related CPD opportunities (based on the CPD research carried out), and seek out other training options.

#### **BBC Media Training**

In addition to those highlighted through the CPD research, other training courses also became available over the period of the module. These were sometimes through specific departments/centres e.g. a BBC Media training day held in July at the Dept. of Biology & Biochemistry (organised through the Media & PR Manager at Bath).

Although this course had been organised for staff and student at the Dept. of Biology & Biochemistry, places were also offered out to other centres and departments e.g. CSCT CDT students and also the ChallengeCPD module students. The offer to the module students was investigated by and facilitated through one of the DS (at the Milner Centre) who was also the module PER rep, and attended the session.

#### **FUTURES 2019 Training**

All module students were encouraged to take part in the FUTURES 2019 European Researchers' Night activities, and associated training sessions running in Bath and Bristol.

FUTURE 2019 training offered:

- Three sessions through the University of Bath: Social Media, Science Comedy and Science Busking training.
- Two sessions through the University of Bristol: Communicating your research effectively, and FUTURES Festival training.

#### **Other training opportunities**

Training and CPD offered through a number of other external organisations was also flagged up to DS e.g.:

- Learned societies training e.g. Royal Society of Biology offer: in-person, in-house, and online training.
- STEM Ambassadors volunteer scheme: online training and local training sessions e.g. 'People Like Me' diversity training course.
- The British Interactive Group (BIG): the skills sharing network for individuals involved in the communication of science, technology, engineering and maths.

However, as part of the module they were also expected to carry out their own investigations into CPD and training in line with their needs and interests (taking ownership of their own CPD).

### **3.7 Resources**

During the course of the module the DS were referred to a wide variety of reports, reference materials, public attitudes surveys, videos clips, publications and online resources. They were encouraged to investigate and share other resources available through the university, but also through UKRI, associated research councils, learned societies and organisations such as the National Coordinating Centre for Public Engagement (NCCPE), and British Science Association (BSA) etc.

### **3.8 Work towards a final PER activity**

The remaining four module students have still to complete a final group activity, but they have been invited to work with We The Curious to develop the People Centre Programming idea as a way to engage people with research, but away from each other's own subject areas.

In addition to developing this group activity the DS are also pursuing their own activity ideas:

- Two students (one from Physics and one from Pharmacy & Pharmacology) are working on a plan to engage young people about what it is like to be a researcher (through face to face activities, but also possibly short GoPro video clips of what 'Life in a Lab' is really like). They are also hoping to collaborate with another DS (first year of a PhD) from the Dept. of Computer Science on these activities, who has recently expressed an interest in getting more involved in PER.
- One DS (Milner Centre) had been investigating opportunities to engage with young people through school talks and workshops, as well as being involved in digital engagement activities, prior to their research placement in Australia. The consultant will meet with them to review their plans at the start of 2020.
- One DS (Milner Centre) has been investigating science media opportunities and ways to engage adult audiences. The consultant will meet with them to review their plans at the start of 2020.

## **4. REVIEW OF PILOT MODULE WITH THE PE UNIT AND CHALLENGECPD WORKING GROUP**

The consultant met with the PE Unit in September to discuss their findings and present different options for taking the module forward. These findings were then discussed with the working group members in October as part of a final review meeting.

Learning from the co-development process with the students was fed back by the consultant. This highlighted a number of benefits, but also addressed some of the challenges encountered. The possible options for taking the module forward were also presented to the group for discussion.

The group agreed a new module structure that had potential for use across all three departments/centres (*see image 2 and section 6. Conclusions & Recommendations*). It was the feeling of the group that it was beneficial to all of them to continue building on this partnership and not run PER module programmes as individual departments/centres.

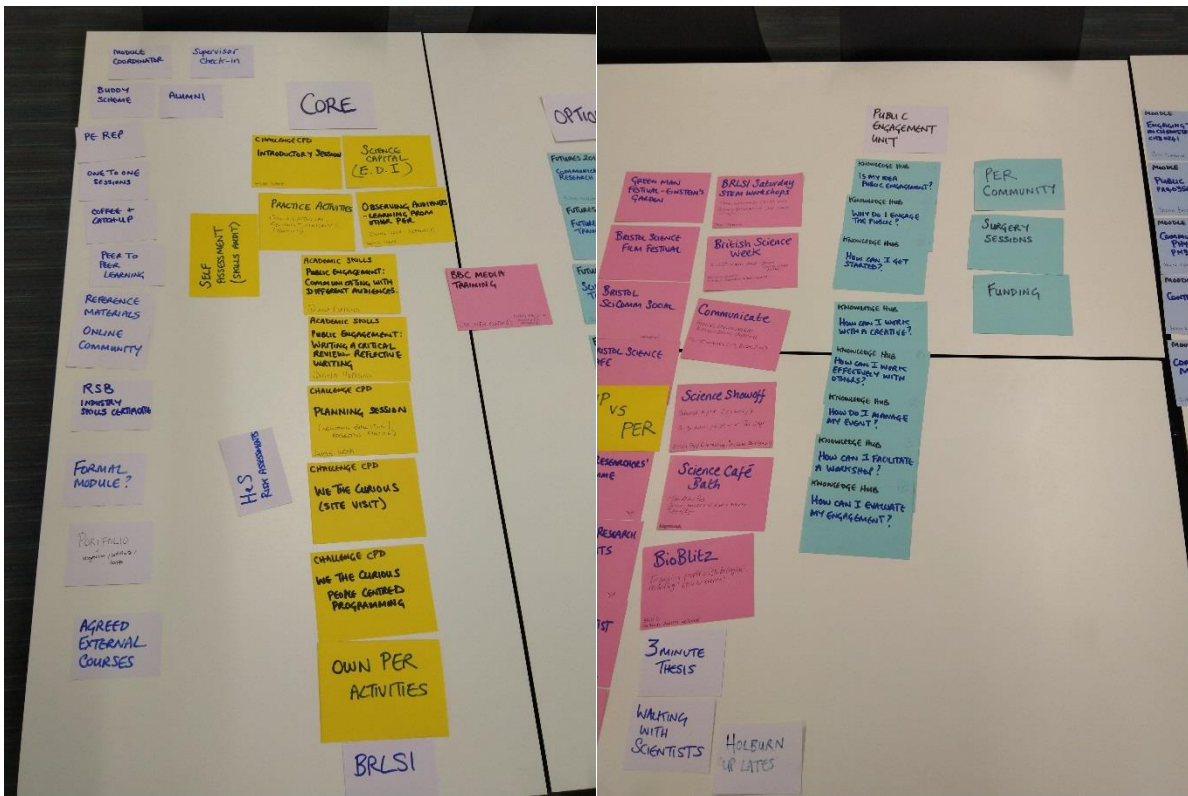


Image 2: Pilot module review and suggested future content

## 5. KEY LEARNING

Learning was gathered throughout the course of the module and a number of benefits and challenges were observed. These have been summarised in the following sections, and were also used in the final module review process to guide and inform how the module could be developed for future use.

### 5.1 Benefits

#### Bringing together CPD learning and opportunities from across Bath together

- *Accessing wealth of existing CPD*

The University of Bath offers an extensive range of CPD and training already that is relevant to PER. Aided by introductions through the PE Unit, partner departments/centres and the Doctoral College, the consultant was able to investigate what was available and could be included as *optional elements* for the module.

Other departments and centres were keen to share their knowledge and expertise. The project brought this together to enable a broad CPD offer to the DS e.g. through undergraduate module coordinators, Doctoral College courses, Academic Skills Centre, Careers Service etc.

- *Accessing PER opportunities*

The University offers a great number of PER initiatives and activities that DS could take advantage of if they so wished. These were useful starting points for the DS to begin

practicing (having a ready-made activity that they could slot into, as opposed to starting to develop one from scratch).

### **Working across the three partner departments/centres**

Benefits of this partnership working:

- There are existing PER infrastructures and PER leaders within the three partner departments/centres (who were all part of the working group), showing PER is supported and valued, so this could be built upon.
- This was a new model of working for the three departments/centres in terms of developing a shared DS module course. The departments/centres, along with the Doctoral College, provided valuable knowledge, experience, feedback and advice throughout the process. This shared expertise enabled a draft module to be agreed and advice on other CPD opportunities that could be investigated.
- Helped to strengthen partnerships and connections across these three departments, and with the Doctoral College.

### **DS as co-developers**

- Being given a voice in the terms of the CPD and training offered through the module. Providing more input into the training offer from both a group and individual perspective (needs of the group versus the needs of the individual), to help shape the sessions and content selected.
- Encouraging DS to take more responsibility for, and better plan their professional develop in relation to PER and as researchers.

### **DS as participants**

- *Working across departments*  
This helped DS to broaden their approaches and skills e.g. DS had their first 'ready-made' audience amongst the group, having to learn to explain their research to their peers from different subject areas, before starting engage with other public audiences.
- *Coming to the module with very different levels of PER experience*  
There was great value in having a range of PER experience amongst the group. This enabled the group to share experiences they had as DS doing PER e.g. real life experiences at an early stage in their research careers as well as PER journeys. And discuss the challenges they had encountered so far.
- *Peer to peer support*  
DS not feeling on their own, and having a support network to develop their PER. In particular for students where they also were not part of large research groups. A feeling of 'community' was important to them, and learning from each other.
- *Becoming more reflective researchers*  
Using what they had learnt from the PER module in terms of self-reflection and reflective practice in both their PER and research practice.

- *Developing new skills and confidence*  
Gaining transferrable skills (which they became more aware of as being transferrable), and the confidence to try new things e.g. submitting funding bids. And better awareness of how these link to the RDF.

## 5.2 Challenges

### Bringing together CPD learning from across Bath

The amount of CPD, training and PER opportunities available could sometimes feel overwhelming to the DS, and came from a number of different departments and centres within the university, meaning they found it hard to keep up with who was offering what and when.

### Working across the three partner departments/centres

- *Timetabling across different departments/centres*  
This was very difficult due to very different timetables and research commitments. As the module was not a compulsory one, with allocated time for formal assessment, dates for module sessions had to be negotiated with the group. This led to sessions where not all DS were able to attend (clashes with other courses, placements etc.), workshops having to be cancelled and rescheduled (workshop 3 was rescheduled twice), and the programme taking longer to put in place than hoped.
- *Not always knowing who else was doing PER their departments/centres*  
Although a lot of PER happens, some of this occurs in isolation, and is not recorded centrally so DS did not always realise the amount of PER occurring and who they might be able to work with and learn from. However, the DS were all encouraged to speak to their PER leads within their departments/centres to help identify possible opportunities and existing activities they could build on.

### DS as co-developers

- *Not knowing what CPD/training they wanted or needed*  
Not feeling they had enough experience or confidence to choose what to do (evidenced through the surgery sessions and phone discussions) e.g. a sense of 'not knowing what I don't know'.
- *Coming to the module with very different PER aspirations and audiences they were interested in reaching.*  
This meant that the module had to be flexible enough to take this into consideration and not push everyone down the same PER route. Highlighting again the importance of tailoring elements of the module to fit individual needs as well as delivering core content.

## **DS as participants - recruiting and retaining students**

### ***Recruitment***

Recruitment of DS to help co-develop the module was challenging because of it not being a fully finished programme with set timetable and content. 'How do you sell something when we don't really know what the final module it is going to look like?'

There needed to be a very clear offer to DS so they could understand the co-development process (and their part in it), the expectations on them in terms of time, and also what benefit it was to them taking part e.g. as it was not formerly assessed it did not count as credits towards a programme of study. The three partner departments worked hard to identify DS who were interested in PER but also confident enough to take part in the co-development process, which resulted in seven DS being recruited.

As well as 'not knowing what they were signing up for', other issues relating to recruitment were:

- *Wrong time of year to start*  
Ideally it would have been better to start the co-development process earlier in the academic year (late autumn/early winter). Starting a few months before the summer period did not provide a great amount of time to start planning sessions and activities before people went away on conferences, placements and holidays.
- *Wrong point in their PhD*  
Although some DS were interested in taking part they felt it had come at the wrong point in their PhD programme (especially for those midway through their second and third years who were focusing on gathering research data or starting to write up their PhDs).
- *No allocated time in their PhD programme*  
Some DS were nervous about committing to the module because of them not having any allocated time in their PhD programmes for it. This is why one DS, who had initially signed up to take part, dropped out after the initial meeting. He was worried about how he would balance this with his research. He was still interested in being involved in PER activities, but felt being involved in pre-organised ones (where he didn't have to do any of the planning) and as and when he could was better suited to him.

### ***Retention and attendance***

Retention of DS to the module programme was an issue in terms of some dropping out at different points during the process, but also in terms of session attendance.

Pressures of research versus PER (not having designated amounts of time that they were given towards) came in to play and some found it difficult to fit it alongside their other commitments.

Other issues relating to this were:

- As the module was not compulsory the DS were not obliged to attend everything, or formerly report back on what they were doing.

- Coming to the module with very different levels of PER experience meant:
  - Some who were less experienced were concerned they needed to try and catch up with their peers (which would mean giving additional time to PER). Surgery sessions helped address these concerns and also highlight other existing transferrable skills they could share with the group e.g. one DS, although not directly linked to PER, had a lot of youth volunteering experience.
  - Some who were more experienced already had their own ideas they wanted to pursue (so were less inclined to take part in full group activities).
- Keeping communication between the group going outside of the core session was not easy, especially as they were spread over three different departments/centres. A module rep (who had some existing PER experience and also enjoyed organising things) was suggested to help with this along with regular 'coffee and catch up' sessions.

Different online methods for sharing learning and communicating were also preferred by the different members of the group, resulting in e-mail becoming the best option. (MS Team had been investigated, but as an external contractor the consultant was not allowed access to this through the university. This would be a useful method to use in future, however).
- Students moving into their final year of their PhD programme during the course of the process. This meant no longer felt they could take part as they needed to focus on writing up their thesis.
- Research placements abroad for a number of months meant a DS needed to withdraw from the module for a time.

### **Sustainability of the module post ChallengeCPD funding**

One of the main challenges for this project was to do with time (at a department/centre level and for DS). But also the amount of time required to coordinate the module by the consultant, especially as it was across three separate departments/centres.

Although an adapted module structure and content has been put forward for future use, now that the ChallengeCPD funding period has finished, who takes on the responsibility of coordinating the module in future, and how that will be resourced requires further investigation.

## **6. CONCLUSIONS**

ChallengeCPD funding supported the development of a new co-produced PER module for use across three partner departments/centres at the University of Bath: Department of Pharmacy & Pharmacology, Department of Physics and the Milner Centre for Evolution. By experimenting with developing training interventions in partnership with representatives of the intended participants, a programme was developed that could meet both group and individual interests and needs (using both core and optional elements).

Using an iterative, formative approach, the consultant worked with the PE Unit, Doctoral College, and PER leaders and Doctoral Students from across the three partner departments/centres and the Doctoral College. This work helped to identify core content, preferred formats and issues that needed to be taken into consideration, including the needs

of academic and professional services staff. Individual components of the module underwent formative evaluation to ensure they were appealing, accessible, relevant and supporting the intended outcomes. Following summative evaluation, the module was updated in response to feedback and an updated module produced with guidance on how to adapt and use it.

Although based around the engagement with science-based research, the module also incorporated generic elements that could be taken and used by other departments across the University of Bath. These, along with the existing wealth of CPD and training already offered through the university (Doctoral College, Academic Skills Centre, undergraduate PE courses, Moodle units etc.), Public Engagement Unit, and new Public Engagement Knowledge Hub e-learning resources (developed as part of the ChallengeCPD@Bristol project by the PE Unit), provides a strong and flexible basis for DS to develop their PER. And can also be complemented with many other external PER CPD opportunities.

Outputs of the project were:

- An overview of CPD opportunities and training provision available across the university relevant to PER.
- A flexible co-developed PER module model for use across the three partner departments/centres along with suggested approaches for future use.
- Generic PER training elements suitable for use by other departments/centres.
- A significant amount of learning about the benefits and challenges of the co-development process. (Putting the learner at the heart of the process).
- Tailored CPD support the DS involved in the co-production of the module.

Although the aim was to recruit up to nine DS to take part in the co-production of the module only seven signed up at the start of the process. Recruitment was challenging as it is easier to 'sell' a fully formed module than one that required their input to develop it. During the process three DS dropped out due to reasons including: wanting to do PER but not through a module programme (rather as and when they felt they could fit this around their research and other commitments); time pressures (not having allocated time through their PhD programme for the module; difficulty of timetabling across three departments/centres); and moving into their final year of their PhD (so needed to focus on gathering remaining research data and starting to write-up their thesis).

The four remaining DS, have however actively sought out PER opportunities and now feel confident to develop and plan their own PER activities as a group (e.g. People Centred Programming) and as individuals. Another first year PhD student from the Department of Computer Science has also expressed an interest in joining the group to develop their PER skills and take part in group activities.

The PE Unit provided invaluable support throughout the project, sharing knowledge and expertise with the consultant, working group and DS, and signposting to other training and CPD opportunities. Other parts of ChallengeCPD@Bath though also provided useful insights, ideas and advice e.g. ChallengeCPD Advisory Board meetings, and through other ChallengeCPD project activities e.g. PE Knowledge Hub e-learning resources.



## 7. RECOMMENDATIONS

### 7.1 ChallengeCPD PER Module – reviewed structure and guidance

The ChallengeCPD module working group met to review the module co-development process. Using learning from this and PER CPD research, the group amended the draft module structure to form an updated model for future use by the three partner departments/centres. The reviewed ChallengeCPD Module structure is shown in *Figure 3*. It was also agreed that the most appropriate times to start this module programme would be in the early stages of the academic year (autumn/winter), but the flexible nature of the model could allow for changes to that.

The new Public Engagement Knowledge Hub e-learning resources, developed as part of the ChallengeCPD@Bath funding by the PE Unit, would also be available for use. These have been incorporated into the model.

Moving forward, a number of other aspects relating to the restructured PER module, and how it could run post funding were considered. These are as follows:

#### **Co-ordination of the module**

Coordination is key in terms of recruiting and retaining DS to the module, and also maintaining momentum (scheduling sessions, identifying new PER training and opportunities as they arise, and facilitating communication between the DS and across the partner departments/centres).

The module requires:

- *Overall management and coordination*

The pilot phase funded the external consultant to manage and coordinate the module. For it to continue resources will need to be found to fill this role. To improve communication, scheduling of programme activities (timetabling and booking rooms), and having access to suitable online workspaces supported by the university, it is recommended that this role is filled by someone based on campus. This would also provide better access for the students to the coordinator.

- *Clearly visible PER Leaders in each of the partner departments/centres*

These already exist (members of the ChallengeCPD module working group), and they provide valuable PER knowledge, support and guidance to DS and colleagues in their departments/centres. They are also able to identify suitable DS who might be interested in taking part in the module.

- *A DS module rep*

Having a module cohort PER rep provides a point of contact for the module coordinator, who can help disseminate PER opportunities as they arise, and facilitate group catch-up sessions and communication.

### **Recruitment and retention - gauging genuine interest**

In order to gauge how interested DS actually are in taking part in the module, when trying to recruit people to it, it is recommended that a set of pre-course tasks should be completed (e.g. to complete three different PE Knowledge Hub e-learning activities, and to register with the PE Unit mailing list), before moving on to the main module programme.

This is a method used by a number of organisations in the voluntary sector e.g. STEM Ambassadors programme has online registration and induction, and Girlguiding use a similar system when recruiting ad hoc unit helpers. Those who take part are genuinely interested in being involved and, as a result, means retention rates are higher.

### **Importance of a flexible programme – one size does not fit all**

The nature of PER means it is not suited to it just becoming an online based course. It requires mixed learning methods with a strong practical element e.g. learning by doing. It is recommended that the module continue to use a combination of *core elements* (providing a foundation to build on) along with *optional* ones to enable it to be flexible (suitable for both group and individual learning, needs and interests), and also have a structure that allows it to be reactive e.g. the ability to incorporate new CPD and PER opportunities as they arise.

### **PER Buddies (peer to peer support)**

In order to support those module students new to PER, it would also be useful to identify suitable people within a department/centre that could act as a PER Module Buddy. These could be people with some existing PER experience (other DS or early stage researchers who are interested in encouraging and supporting others to do PER, sharing their learning experience). Rather than using a more formal mentoring approach, these buddies would act as a 'friendly face' with whom DS could use as a sounding board for ideas, questions or problems module students were encountering. This role could also provide a good personal development opportunity for those wanting to further develop their PER skills, without requiring a large time commitment.

### **Developing PER Portfolios?**

As the module is an optional one, getting the DS to record what they did was challenging. During the pilot module they were encouraged to choose a method (that they felt most comfortable with) to capture their reflections and learning e.g. Blogs, video diaries, reflective diaries etc. However, without formal assessment most of them did not do this.

For future use of the module, it is recommended that they start to develop individual PER portfolios (exact method to be agreed by the departments/centres and DS). These could be used with PER Leads and/or PhD supervisors at scheduled 'check-in' points (as DS will do for other parts of their PhD programmes) and with PER buddies to check on progression and address any issues or concerns they might have.

## **Self-reflection**

At the heart of the module is reflective practise. It is important for all DS to really make time to think about what they are doing and why, and to think more strategically when planning their own PER activities.

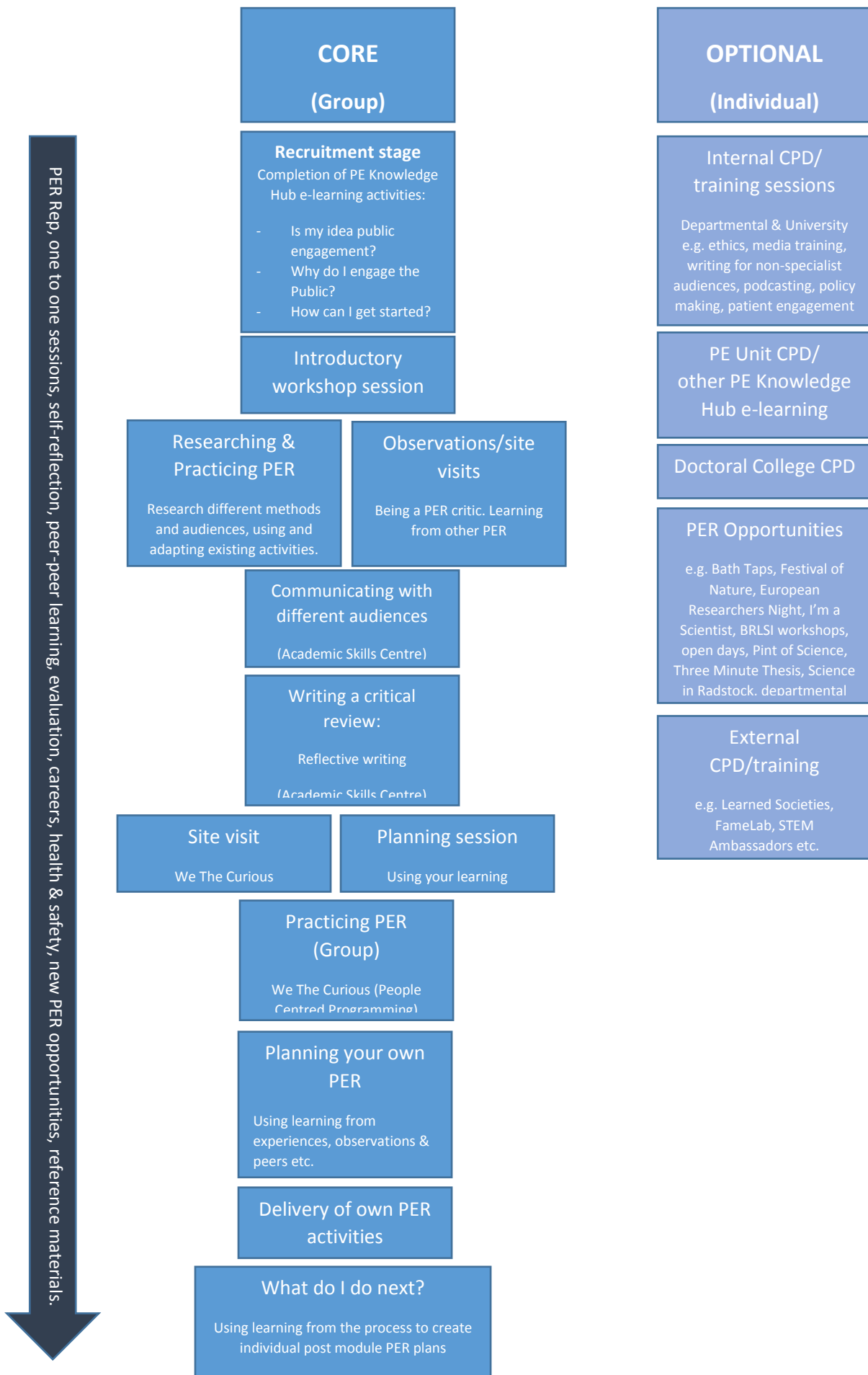
ChallengeCPD funding supported the development of a set of PER self-assessment tools linked to the Researcher Development (RDF) Domains. These tools encourage people to consider what existing skills and knowledge they have, but also their interests and values at different points in their PER learning journey.

Using these would encourage DS to take more responsibility for thinking about how they develop their skills in general throughout their time as researchers. And linking back to the RDF. These could be used at the start, during and at end of the module to help DS consider their CPD needs.

## **Final module celebration event**

A joint final celebratory PER module event (linked to existing departmental/centre activities on a rolling programme e.g. each department/centre take it in turns to host this, or a PE unit event etc.) would provide a good end point for all the DS to work towards. It would also provide an opportunity to celebrate all of their learning and achievements, and act as a promotional tool for recruiting other DS to future cohorts.

Figure 3: Reviewed ChallengeCPD Module structure



## 7.2 Other possible approaches to PER CPD and training

### A PER programme

A more flexible ongoing programme for those wishing not to commit to a module but wanting to develop their PER.

There is a huge amount of existing training and PER opportunities at Bath already, and through numerous external local and national initiatives. These could be used to support a flexible PER CPD Programme, where interested DS and other researchers could select CPD and PER opportunities to fit around their interests, as well as their research and other commitments.

Three of the DS who were recruited to the ChallengeCPD dropped out at different points of the process due to time pressures and what they could or wanted to commit to. Having a more flexible PER programme might have been better suited to their needs.

Elements that could be considered to support a PER Programme:

- *Learning from a chartered approach*  
Chartered status recognises the well-developed skills, knowledge and professionalism of those working within the particular fields. They are part of broader recognition and development frameworks, and allow individuals to gather evidence of skills, knowledge and professional and personal development as part of their assessment programme, whilst working in a particular field e.g. Chartered Scientist (CSci) or Chartered Teacher.
- *Developing a PER portfolio*  
PER can often happen in very scattered and sporadic ways e.g. as an opportunity arises. For those not wanting to commit to a module, a portfolio approach could help better capture, plan and reflect on their PER experiences and learning, and plan their CPD.
- *Levels of 'competency' and experience (reward & recognition)*  
Building on the idea of developing your own personal portfolio of PER, these could then form part of a different levels of 'competency' (an approach often used by industrial graduate training centres) e.g. evidence gathered being used to support achieving particular levels in PER (which could be signed off by a departmental PER lead, and be linked back to the RDF). Different levels could be achieved through the number of activities/hours of activity, running alongside related training/CPD.

The STEM Ambassador scheme (run by STEM Learning: [www.stem.org.uk/stem-ambassadors](http://www.stem.org.uk/stem-ambassadors)) use this system where they recognise levels of volunteer participation. When ambassadors have registered a certain number of activities (they do this through a central database) they can achieve bronze, silver or gold levels, which also encourages people to register their activity, providing an overall PER picture of what activity is happening across the UK. Ambassadors are also able to print off their particular level certificate as they achieve them, which many use when going through performance reviews with their employers, or for job applications.

- *Extending the University of Bath 'PER Community'*  
Further developing a 'public engagement with research community' across the University. As well as researchers (of all levels) being able to sign up to a PE Unit mailing list, this could be extended to being able to signing up to a PER Community. Benefits of joining this could be: access to a PER CPD Programme (selecting from a series of approved training sessions and PER opportunities); face to face and digital networking opportunities (facilitating peer to peer learning and support across the university); and PER surgeries.
- *PER Advocates*  
Building on a PER Engagement Reps network previously established through the PE Unit. A Public Engagement Reps group that DS could apply to be part of, had been set up by the PE Unit as a way of disseminating of PER opportunities and training within different departments/centres.  
  
Using a similar model, researchers interested in PER could be invited to become PER Advocates within their own department/centre, to continue raising the profile of PER (how much PER is growing and valued across the university) and how it is supported it is by the PE Unit and the University of Bath.

### **7.3 Future funding bids – developing a compulsory PER module programme**

Developing a compulsory PER module for a PhD programme has been shown to work well for DS e.g. the CSCT model funded through EPSRC CDT grants at the Department of Chemistry (where a PER training structure and associated budget was included as part of CDT funding bid). This removed the need for incentivising the module as it was part of their formal year one assessment. It worked well for the CDT as all students who applied to be part of the CSCT PhD programme knew they would be expected to pass a PER module to move on to their second year (so were open to the idea of PER as part of their studies).

Making a PER module compulsory across a whole department/centre might have its own challenges. Managing a similar programme would not work easily across a number of departments because of scheduling challenges, and managing numbers of students if it was embedded in a PhD programme (having to run a series of duplicate sessions to accommodate larger numbers of students e.g. up to ~18 DS was the ideal number to successfully run workshop sessions with, due to the practical nature of PER). And it would not be sustainable without a significant allocated budget and an onsite co-ordinator (based at the University of Bath) who could work across the departments/centres involved, making sure that all students were assessed in line with each PhD programme. It also does not allow much room for more personalised CPD elements to be selected by DS.

#### ***Word of caution relating to compulsory PER for DS***

It is also important not try and make all PhD students do PER. There needs to be a desire and interest in doing PER, which not all students will have, if not it can lead to poor quality engagement (people need to feel motivated to do it in the first place, not for it to feel like a chore).

One of the ChallengeCPD module students observed some activities at another University where a particular department expects all students to do PER. They observed very varied engagement with audiences they were running activities for because of the different levels of interest and buy in of students involved e.g. it was obvious to the DS that the ones who were interested in doing PER were much more enthusiastic, proactive and effective at engaging with the audiences, compared to those who weren't (they appeared uncomfortable with being part of activities and lacked enthusiasm, so were less effective at engaging people with their research).

One way of encouraging more interest by DS in PER however, is through activities and opportunities to showcase PER within departments/centres by module students (which could be part of existing meetings and events). These can start to instil an interest amongst other DS who are initially reticent at getting involved with public engagement. Through observing what their peers are doing it can help them better understand the variety and breadth of PER and potential opportunities, so it is not just seen as 'doing festivals and going into schools'. That there are many different approaches and audiences they could engage with. But importantly, that this is something supported, encouraged and valued by their department/centre.