UNIVERSITY OF
Southampton

Strategic Support to Expedite Embedding of Public Engagement with Research (SEE-PER)

PER Challenge: Enhancing the take up of training and CPD for PER

Final Report

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The SEE-PER programme

The UKRI Strategic Support to Expedite Embedding Public Engagement with Research (SEE-PER) call sought to help enrich and embed cultures within HEIs where excellent public engagement with research (PER) is supported, valued, rewarded and integrated within institutional policies and practices. The first year of this programme ran from October 2017 to October 2018. Two types of approach were funded:

'Embedding change' proposals that sought to enhance and embed an institution's approach to supporting PER, building on the learning from the Beacons for Public Engagement, RCUK PER Catalyst and Catalyst Seed Fund programmes:

- Birkbeck College, University of London, led by Professor Miriam Zukas
- Heriot-Watt University, led by Professor Gareth Pender
- Keele University, led by Professor David Amigoni
- London School of Hygiene and Tropical Medicine, led by Professor Dame Anne Mills
- NERC Centre for Ecology and Hydrology, led by Dr Nick Wells
- University of Lincoln, led by Professor Carenza Lewis
- University of St Andrews, led by Professor John Woollins

'Challenge' proposals which addressed a specific challenge in supporting PER effectively, and which expanded the existing knowledge base about 'what works' in effectively supporting PER:

- University of Brighton: developing and incubator model for finding and fostering new community-university partnerships, led by Professor Tara Dean
- University College London: exploring how to make PER fundamental to the university's efforts to address global societal issues through cross-disciplinary research, led by Professor David Price
- University of Bath: examining the challenges associated with training and professional development for public engagement, led by Professor Jonathan Knight
- University of Southampton: tackling barriers to professional development in PER and developing a robust educational framework for such activity, led by Professor Simon Spearing
- STFC – Laboratories: investigating the take up and provision of PER training, led by Dr Neil Geddes

In May 2018, the SEE-PER projects were given the opportunity to apply for a second year of funding to embed and expand upon work done in the first phase. Ten of the twelve projects received funding to extend for a further 12 months, and the programme concluded at the end of 2019.

UKRI appointed the NCCPE to co-ordinate this work, ensuring learning was shared across the projects, and that evaluation was used strategically to inform and assess the value of the SEE-PER initiative.

Further learning from the SEE-PER initiative can be found in the 'Support Engagement' section of the NCCPE website.

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1. Context

The University of Southampton recognises public engagement as vital to its role in society locally, nationally and internationally; we have an established track record of excellence for both the scale and quality of our engagement activities. The University's Public Engagement (PE) Network was formed in 2011, following an institution-wide event 'Celebrating PE at Southampton' event coinciding with our sign-up to the PE Manifesto. A number of strategic initiatives in the period since our Manifesto sign-up have helped us develop as an engaged university. The Network is open to all, including undergraduates and professional service staff, external stakeholders, partners and individuals. It has functioned historically as a central meeting point for the multiple and disparate cultures of public engagement at Southampton. In the period 2011-2015, strands of 'embedding' work were progressed by a small informal team, with ad hoc short-term funding.

Some previous achievements include: 1) securing PER criteria within the University's revised (2014) Academic Reward and Recognition framework; 2) clear referencing of PER in the Vision 2020 University Strategy; 3) creation of a new Engaged University Steering Group (2014) to join up and learn from institutional activities across: research-led Public Engagement; PublicPolicy@Southampton; the Arts and Culture Strategy; and active UoS outreach activities (with schools/pupils) – latterly including the Talk to Us SUPI project; 4) development of an extended PER training offer for all academic levels, within a Spectrum approach to PER, offering access points at differing levels of skills and experience; 5) targeted seed-funding (PER Development Funding), via a call-process informed by embedding/culture-change principles, to support a variety of PER projects at discipline level; 6) a day of stock-taking and agenda-setting PER review workshops and debates in May 2015; 7) many staff across the institution involved with public engagement projects, often of very high quality; for example, Southampton had one category winner and two category finalists in the NCCPE's Engage Competition 2014.

The award of CSF1 funding in August 2015 enabled formalisation of the ad hoc team into a Public Engagement with Research unit and their resulting good progress across the 12 month project prompted a plan for further sustainability. The PI, Professor Jane Falkingham, provided continuity for the embedding agenda and strategic direction through a period of senior management change (new VC, new Chief Operating Officer, new Vice-President for Research & Enterprise) and, in summer 2016, the University Executive Group approved 3 years' core funding (to August 2019) for the Public Engagement with Research unit, and this has since been extended until 2022. Two members of the unit attended the first NCCPE Academy Programme (15/16), followed by further colleagues subsequently and the team continues to learn from and share sector-expertise, facilitated by the CSF process and Beacon/Catalyst history.

The Public Engagement with Research unit (PERu) inspires and supports high-quality public engagement across all disciplines, collaborating closely with our Public Policy, Research & Innovation, Outreach and PPI teams. A spectrum of opportunities and high quality engagement platforms (Human Worlds Festival, Science & Engineering Festival, Research Café, 'Bringing Research to Life' Roadshow) encourage participation from students, researchers and academic staff at all levels of seniority; a number of groups and networks – both internal and external - facilitate discussion and ideas-sharing and inform planning. Annual seed-funding for innovative engagement projects and a continuing focus on CPD and evaluation of engagement activities provide a maturing infrastructure within which engagement can thrive. The Engaged University Steering Group provides strategic oversight with leadership from the Vice President (Research and Enterprise), helping to ensure that PER retains a prominent place within the minds of our senior leaders.

The existing body of work around PER at Southampton, and the established nature of the links between PERu and other key stakeholder groups with the institution, presented a strong foundation on which to base a successful SEE-PER project, which would challenge the status quo and present a new model for training and development that could see a change in culture around this core activity. A new Centre for Higher Education Practice (CHEP) was established at the University around the time the original SEE-PER proposal was submitted, presenting us with a unique opportunity to transform training provision, supported by the momentum generated by a new centre in its early stages. The project has operated throughout as a collaboration between CHEP and PERu, being led by the former, helping to ensure that PER training is seen as a core priority within the wider professional learning agenda at the Centre and maximizing the impact through the deployment of staff with expertise in staff development and its evaluation.

2. Short overall approach

Our approach to delivering on the objectives of our SEE-PER project took into account the strategic aims of both PERu and CHEP, and drew on input from academics and researchers to establish how barriers that prevent engagement with PER training could be addressed and how the provision of a robust educational framework that could support them with their PER journeys could be developed. Figure 1 outlines the different stages of the project, with a short narrative describing activities under each heading.

A research project, which drew on extensive evaluative data collected during and after each iteration of the training programme, commenced during Year 2 of the project, and this provides the data and evidence that underpins the claims made in this report. This research project is ongoing, with data continuing to be collected as the training programme continues beyond the funding period, helping to provide longitudinal insights regarding the aims of the Southampton SEE-PER project.
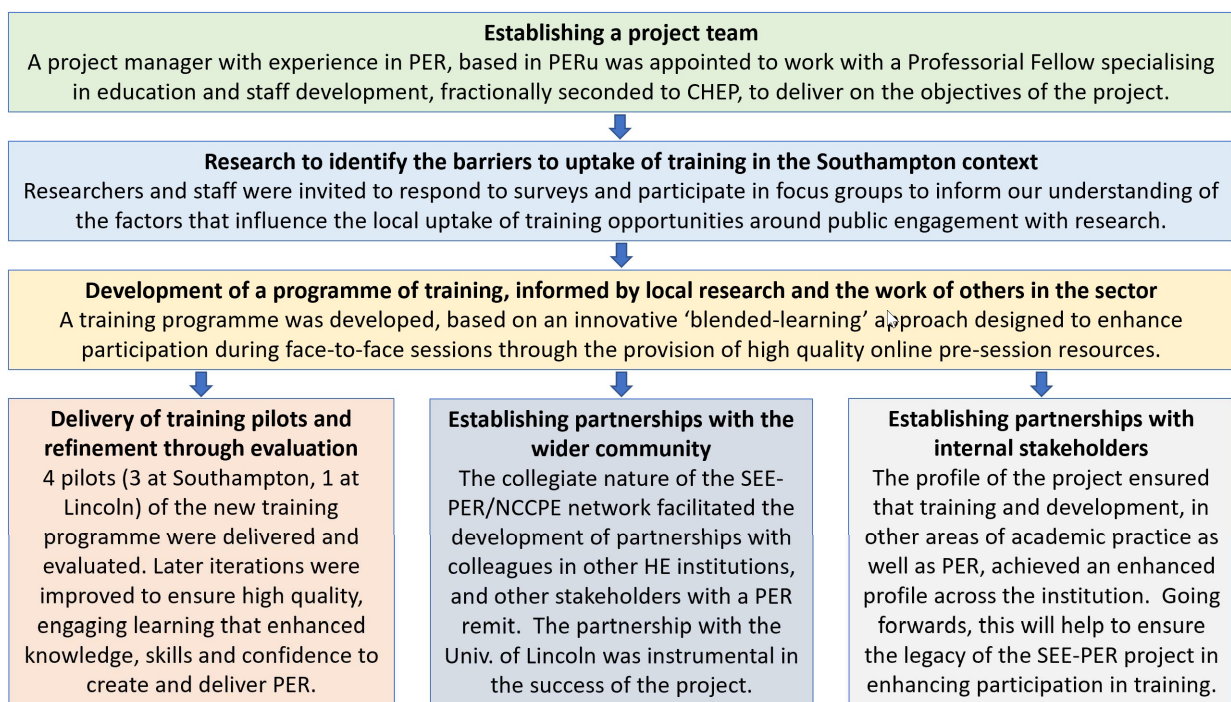
Establishing a project team
A project manager with experience in PER, based in PERu was appointed to work with a Professorial Fellow specialising in education and staff development, fractionally seconded to CHEP, to deliver on the objectives of the project.

Research to identify the barriers to uptake of training in the Southampton context
Researchers and staff were invited to respond to surveys and participate in focus groups to inform our understanding of the factors that influence the local uptake of training opportunities around public engagement with research.

Development of a programme of training, informed by local research and the work of others in the sector
A training programme was developed, based on an innovative 'blended-learning' approach designed to enhance participation during face-to-face sessions through the provision of high quality online pre-session resources.

Delivery of training pilots and refinement through evaluation	**Establishing partnerships with the wider community**	**Establishing partnerships with internal stakeholders**
4 pilots (3 at Southampton, 1 at Lincoln) of the new training programme were delivered and evaluated. Later iterations were improved to ensure high quality, engaging learning that enhanced knowledge, skills and confidence to create and deliver PER.	The collegiate nature of the SEE-PER/NCCPE network facilitated the development of partnerships with colleagues in other HE institutions, and other stakeholders with a PER remit. The partnership with the Univ. of Lincoln was instrumental in the success of the project.	The profile of the project ensured that training and development, in other areas of academic practice as well as PER, achieved an enhanced profile across the institution. Going forwards, this will help to ensure the legacy of the SEE-PER project in enhancing participation in training.

Figure 1: Outline of the stages in the Southampton SEE-PER project

3. Synopsis of Year 1

The SEE-PER project at Southampton, titled 'Enhancing the take up of training and CPD for PER', brought together colleagues from the Public Engagement with Research Unit (PERu), the Centre for Higher Education Practice (CHEP) and interdisciplinary groups. The aim was to investigate the barriers and challenges to the uptake of PER training and CPD that ultimately impact on the quality of PER activities that are delivered in practice, in line with the prioritized challenge that underpinned the call for proposals.

<u>Project aims during Year 1 of the project</u>

The aims of the project, as formulated in the original proposal, are outlined in Table 1 below:

Short-term aims	Long-term aims
- To identify/clarify barriers to take-up of PER training/CPD, working with researchers and academic staff at Southampton; - To develop and pilot an enhanced PER training/CPD offering; - To inform the design/delivery of training/CPD supporting PER, and 'academic practice' more broadly, at Southampton.	- increase capacity for delivery of PER training/CPD through a distributed model of professional development working across Faculties, Academic Units and other groups at Southampton; - embed training/CPD supporting PER in academic and researcher development programmes at Southampton; - inform the wider sector regarding best practice in PER training.

Table 1: Year 1 project aims

<u>Reviewing the state of play regarding participation in PER training at Southampton</u>

We took a collegiate approach in our early work, which involved reviewing training needs through a survey and a number of focus groups. This helped us to better understand factors that underpin and exacerbate the barriers to embedding PER at Southampton. Activity during Year 1 of the project provided an opportunity to consider 'what works' in terms of engaging staff and researchers in PER training by:

- addressing key challenges identified by our own research, including 'lack of time', 'lack of awareness' and 'lack of support' for PER training within the organisation;

- discovering how these issues are experienced by academics and research staff in practice;

- co-creating responses and solutions that address how the uptake of PER training can be improved in future.

Participants in our survey and focus groups were asked to provide their own personal definition of PER, which itself provided some insights regarding misconceptions around the nature of public engagement. It was particularly striking that very few participants identified that true PER involves an authentic dialogue, allowing individuals or groups who are receiving the engagement to also influence the research or the researchers in a meaningful way. While the definitions given were indicative of a laudable rationale for participation in PER, this is perhaps indicative of the fact that some existing PER activities were not having maximum impact in terms of two-way engagement.

Participants were also asked to identify what they thought were the most significant impacts of engagement activity they had been involved in. A number of responses alluded to entertainment (or 'edu-tainment') and the level of interest exhibited by the publics with whom they had engaged, and it was evident that evaluation was not always being carried out in an objective manner that would allow impact to be 'measured' effectively. In fact, many participants did not have a clear understanding of why evaluation was important or how it might be conducted.

Participants clearly recognized that a range of skills are required for effective public engagement, most notably communication with a non-specialist or lay audience, and the chance to develop such skills was a key motivating factor in encouraging them to get involved with PER. It was evident that many of them did not fully appreciate the depth of planning required for effective public engagement, and the importance of alignment between the overall aims of the engagement activity, the manner of its implementation and the evaluation methods used to ascertain its success. One pleasing finding was that most participants were able to identify multiple beneficial outcomes of PER activity, ranging from enhanced awareness of one's own research to the empowerment of publics in tackling global challenges, with a range of benefits to HEIs and other stakeholders.

Designing a new training programme

The findings outlined above provided a very clear steer in terms of what researchers and academics at Southampton needed in terms of training. Many of the issues raised here reflected the contents of the 2016 report 'The State of Play: Public Engagement with Research in UK Universities', particularly around the importance of a 'winning combination' of training and PER practice. Our SEE-PER project represented an opportunity to move away from a culture of 'just in time' training for PER, typically deployed at the last minute prior to delivery of an 'event' to ensure the smooth running of the activity rather than to enhance the quality of engagement. Another point raised in the State of Play report was the fact that the name given to an instance development activity (e.g. training vs CPD vs professional learning) and its format is important in determining how it will be perceived by potential attendees, with workshop-based sessions that build capacity in a hands-on format reported to be well-received.

Reflection on the above helped to shape the development of an outline plan for a programme of training for researchers made up of 4 parts as outline in Figure 2. Each part comprises a set of online activities followed by a face-to-face session; together, the online and face-to-face components make up an 'episode'. Flexibility was built into the design of the training, such that episodes can be studied in a range of settings, include home, on campus, as individual events, or as a complete module, depending on previous PER experience and availability of time.

The programme began with a broad overview of the PER lifecycle, within which the importance of evaluation was emphasized, reflecting the fact that effective evaluation must be built in to PER design from the beginning and not incorporated simply as an afterthought. Subsequent episodes were intended to help participants build a knowledge base and develop the skills required to successfully implement PER activity either on their own or as part of a bigger team. The proposed plan was presented to some of the researchers and academics who participated in the initial fact-finding phase of the project, and modifications were made on the basis of their suggestions. Further details of the content of the training episodes and their development can be found in the 'Activities and outputs' section of this report.
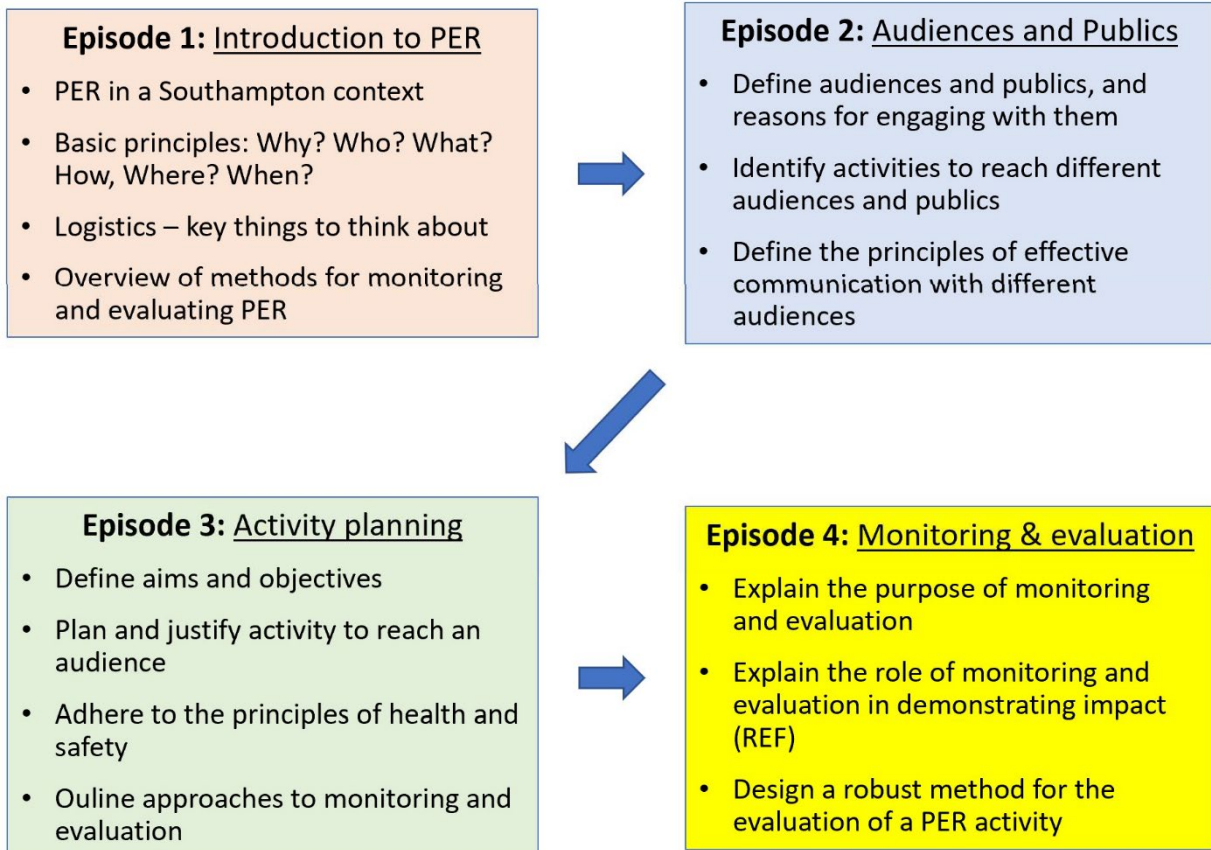
Figure 2: Outline of the 4 episode SEE-PER training programme devised at Southampton

Although a pilot of the training programme took place during Year 1, its evaluation took place in the early part of Year 2 and this supported reflection and subsequent refinement of the programme in collaboration with the University of Lincoln, with whom a partnership was established after the development of the initial 4 episode plan. The outcomes and underpinning evidence are outlined in greater detail in later sections of this report, reflecting the fact that the main steps forward took place during Year 2.

Progress during Year 1: Achievements and successes

Good progress was made against the short-term aims outlined at the start of this section, in that we developed a good working knowledge of the barriers to uptake of training and development around PER, which then strongly informed our planning for an enhanced training programme. In terms of the third aim, which relates to role of the SEE-PER project in informing the design and delivery of professional development activity more broadly, progress was also made, although this aim was addressed substantively during Year 2 of the project.

The marrying of expertise from PERu and CHEP during Year 1 of our SEE-PER project was hugely advantageous in bringing in staff development expertise to enhance training provision for PER, while also allowing us to capitalize on good examples of PER by drawing in new participants and disseminating the best practice demonstrated in areas of the University that are more advanced in the realm. This was exemplified by the fantastic level of engagement observed in the researchers who participated in our pilot training programmes. The levels of excitement, enthusiasm and dedication to PER exhibited by many of our researchers helped to fuel this success, and this particular legacy of Year 1 continued as work was expanded in this area during Year 2.

The ongoing evaluation of our project helped us to document emerging success stories, which inspired others and captured the eagerness of Southampton academics and students to

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overcome barriers and challenges and get involved with PER. It must be noted that a much of the success of our project so far has been due to this existing willingness of colleagues to discover what PER really is, asking "how it can be done well?", and "can I do it too"? From the outset, volunteers have readily come forward to help us produce training videos, complete our online survey, register to attend focus groups and brainstorming sessions, and individuals have been intrigued to discover more about the project. We were able to further capitalize on the contribution of the researchers who participated in our SEE-PER training pilot, in terms of a) the generation of outputs which could be used as new training materials in later iterations of the training programme, b) the design and delivery of novel public engagement activities as a result of our training (with support from small amounts of seed funding provided as part of the SEE-PER project), and c) the evaluation of these activities in a coherent and coordinated manner, further supporting the research project being undertaken during Year 2 of the project. These aspects are outline in more detail in the relevant sections of this report.

<u>Challenges experienced during Year 1 and our response to them</u>

A number of significant challenges were experienced within the duration of the initial project timescale. The time lag associated with the recruitment of a project manager prevented a swift start to the project, although this was mitigated through the temporary employment of a part-time project officer to initiate the research and fact-finding that underpinned the project's initial phase. This was accompanied by a period of national strike action, which reduced participation in focus groups and surveys, and slowed the early progress made of the project preventing us from gaining momentum in a manner that compromised our ability to rapidly create a new PER training programme. Furthermore, a major institutional restructuring process, in which the number of faculties was reduced from 8 to 5, was announced shortly after our project commenced. This resulted in major changes to the organization and administration of activities such as PER and staff development, which halted progress towards the deployment of a 'distributed model' of training across the University.

In the face of these challenges, it was clear that the partnership between PERu and CHEP increased the resilience of 'Team PER' at Southampton, with high levels of activity being successfully delivered during this turbulent period, with recognition of the strategic importance of PER continuing to develop within the University. The PERu team is small (less than 5 FTE) and has the broad remit to operate across the whole of our large University community. By ensuring that PER training is seen as a core activity within CHEP, some of the burden for driving ongoing cultural change around PER has been lifted from PERu, and a new and powerful voice is added to strengthen the call for participation in what we believe is a core academic activity. While PER has yet to become an explicitly-referenced part of the framework for academic probation and promotion, the SEE-PER project is helping to put this on the agenda for when these criteria are next reviewed.

<u>Evaluation, evaluation, evaluation: seeding a research project</u>

Another key focus for the first year was to establish clear mechanisms for the evaluation of the project i.e. to investigate which aspects of PER training have the most significant impact on researchers' confidence to design, deliver and evaluate PER activity. During Year 1, methods for the collection of a range of data from participants in the pilot training programme, were established. Beyond informing the evolution of the training programme over time, we identified that these data sources might support the implementation of a research project to investigate the impacts in more depth. Although this wasn't feasible within the short timescale of the original project, this was something that could be explored as a component of proposal for extension funding.

4. Introduction

Continuation funding had a significant impact in taking the project beyond the pilot phase to support a more thorough evaluation of our initial work, which then informed the processes of refining and embedding the training programme, while supporting progress against the longer-term aims of the project.

During year 2, our aims and objectives were to:

- Broaden our focus from researchers to other staff via CHEP and the Doctoral College, and demonstrate transferability to different disciplines – collaborating with colleagues in the new Faculty structure and devise 'train the trainers' sessions for those delivering training
- Adapt and develop the researcher training model to offer more flexibility for a range of academic staff audiences.
- Embed PER as a CHEP core training theme, with delivery across multiple faculties, to ensure sustainability.
- Initiate a research project to evaluate the impact of the training activities and identify best practice to share more widely.

An additional aim, which helped to leverage further staff input from the CHEP team, was for the evaluative work being performed as part of the SEE-PER to inform the design and delivery of CPD supporting 'academic practice' more broadly.

Alignment with institutional aims

In line with the original RCUK SEE-PER objectives, our key goal was to expand the existing knowledge base about 'what works' in effectively supporting PER, which we aimed to do by developing, piloting and evaluating a new programme of training. Our belief was that, by seeking to embed PER training as a core strand of researcher and academic development activity, we would raise the profile of PER, ensuring that it was routinely encountered by individuals in the early stages of their career journey, from Ph.D, through ECR, to early-stage academic. In time, this would lead to PER being seen as 'core business' by colleagues at more advanced stages of their career, who would then encourage junior members of their research team to engage with our training thus perpetuating our messaging about the importance of this activity. Achieving this goal, and thus expanding our range of PER activity, would strengthen our status as a highly engaged university, building capacity to enhance our links with the local community, industry partners and policymakers and growing the impact of our research. By bringing together expertise in staff development and PER, through the collaboration between CHEP and PERu, we would focus on developing best practice in our approach to the design, implementation and evaluation of our training programme, which could then be shared with the wider PER community, hopefully meeting their broader aims as well as our own. This would be underpinned by upgrading our evaluation activity into more of a research project, introducing a higher level of rigour into the analysis of data collected from participants in our training activities.

Our evolving understanding of the project aims

The main difficulty in evaluating our progress towards our project aims is the fact that the desired outcomes will only be fully realised, and therefore will only be measurable, in the longer-term future. In view of the short timescale of the funded part of this project, even taking into account the extension funding, it is difficult to categorically state that these aims have

been achieved. Nonetheless, the collection and analysis of evaluation data has given us great insight regarding the efficacy of different elements of our training programme in terms of driving PER activity and changing mindsets. It has also been evident that bringing about rapid change in the area of staff development in a large institution is challenging, particularly during a turbulent period impacted by organizational change and industrial action. It was evident early on in the project that it would only be possible to make partial progress towards the final destination envisaged, which therefore necessitated a focus on planning for sustainability to ensure that momentum would be maintained beyond the duration of the funding. This has ended up being a very positive element of the project, in that work is continuing now, through 2020 and beyond, to further embed the training programme as core provision and to move towards a distributed model for delivery, while also further adapting the programme to meet the needs of colleagues at more advanced stages of their careers.

Our understanding of the aims was also influenced by our engagement with participants and other stakeholders throughout the duration of the project. Data collected directly from participants during the training programme, and subsequently from their own evaluations of their PER activity, shaped our approach to the project aims over time and informed our longer-term planning around sustainability. Working closely with the University of Lincoln during Year 2 provided valuable insight from the perspective of a relatively new University that had made great strides in PER thanks to an ambitious strategy. This gave us a valuable 'sense check' for much of what we were thinking about and planning, and gave us access to a broader range of examples and resources that greatly enriched our training provision.

5. Project inputs

The key resource that underpinned the entire project was the core SEE-PER team. Once the project manager was in post (~4 months after the commencement of funding), rapid progress was made in taking forward the development of the training programme based on the initial fact-finding activity. However, the success of the project was based on much more than the small team at the heart of the operation, and there were a significant number of inputs that were crucial at different stages.

Input 1 - The University of Southampton research community: Informing and influencing the project

Academics and PGRs at the University of Southampton have been central to our project, given our plan to develop a suite of PER training through a process of co-design and creation, followed by co-delivery on an ongoing, long-term basis. These colleagues gave generously of their time, contributing to our initial research via surveys and focus groups, albeit in a somewhat fragmented manner due to the unforeseen nationwide HE strike action occurring at the time. Nonetheless, valuable ideas and discussion points were collected that shaped the rest of the project. We were also able to audit other PER and related training activity already taking place across different areas of the University, with the aim of learning from these activities and integrating best practice gleaned from them into our programme of training. Again, we are indebted to colleagues who generously contributed their ideas and expertise in shaping our thinking and the direction of the project during the design phase.

The process of creating resources and materials for the training programme drew on input from beyond the project team. This was felt to be important in view of the fact that the longer-term aim was to move to a distributed model; such an approach would be supported by the availability of resources created in a range of disciplinary contexts with broader applicability. Individuals from across the University were willing to be involved, sharing their PER knowledge and learning either through the creation of resources to support particular training episodes, or direct involvement in delivery of the training programme. This facilitated the creation of new collaborative links e.g. with our Schools and Universities Partnership Officer, who demonstrated and explained the new Engagement Mapping tool that shows the reach of engagement from our institution to encourage future PER organisers to make use of it and draw on the expertise of others.

Input 2 - Our collaborators at the University of Lincoln

Our collaboration with the University of Lincoln played a key role in the success of the project. Although we had already devised a plan for our training programme, and had subsequently consulted on it to gain approval from other internal stakeholders, our partnership with Lincoln accelerated the process of implementing this plan and turning it into a viable set of online activities and face-to-face sessions. Furthermore, the involvement of a second institution helped us to devise a programme that would be much more transferrable to other institutions, rather than perhaps being somewhat Southampton-centric as may otherwise have been the case.

The partnership involved regular planning meetings, mediated via phone calls, and shared access to a resource drive which was effective in promoting efficient remote working. If anything, the collaboration tightened up the timeline for delivery, with agreed key project milestones and a strong working relationship driving the completion of the resources in time for delivery. In Year 2, we held two meetings in London where the core project teams from both institutions were able to jointly evaluate the training programme and develop plans to refine and enhance the training for future iterations; from our perspective, it was an enriching and enjoyable collaboration, and was one of the highlights of the project.

Input 3 - Participants in the training programme

It was vital that we had access to a pool of willing 'guinea pigs' to participate in our training programme, ensuring that we were able to collect sufficient data to ascertain the impact of our project in driving the changes we were seeking to implement. The role of the early fact-finding work in shaping the training provided an authentic 'sales pitch' to encourage involvement, while also identifying a number of individuals who would benefit from participation. Each time we completed an iteration of the training programme, the positive feedback obtained from participants provide us with further valuable material to support recruitment, meaning that we had strong participation on each occasion. Furthermore, this feedback informed the continual refinement of the programme, while some of the resources created by participants during training sessions were utilized in later iterations of the training.

Input 4 - other internal stakeholders

We drew on input from a range of internal stakeholders in creating resources for our training programme, including the Public Policy Manager, the Patient and Public Involvement Manager, the Schools and Outreach Manager, the PER activity Organiser and the Director of PERu. We also received contributions from the LifeLab Programme Manager, based at Southampton General Hospital, who shared her expertise in relation to evaluation of PER based on work she had done as part of a highly commended REF2014 Impact Case. These contributions added authenticity to our training programme and helped to spread awareness of our activity across the institution, while also exposing our training participants to parts of the University they may not have others had awareness of. All of this helps to make us a more 'connected' institution.

Input 5 - external stakeholders

Our SEE-PER project coincided with the establishment of a new strategic partnership for public engagement with Winchester Science Centre, representing a shared vision between the institutions to use public engagement in science as a catalyst for activities that will lead us all to changing the world for the better. Their associate 'Head of Curiosity' spoke spoke about PER in practice at one of our training episodes. He also offered to host our participants at the Centre in future so they could use and test their new PER knowledge and skills in a real-world setting with Science Centre visitors. We have continued to build positive relationships with other external communication and engagement colleagues who support this project and many agreed to participate in a video for an online activity about engaging different external audiences.

Input 6 - Funded activity: the fruits of our labour

A small portion of the SEE-PER funding was allocated to participants in the training programme (up to a maximum of £200 per participant) to support the development of PER activity. This was envisaged as a way of adding meaning to their participation in the programme, giving them a chance to put their learning into practice and helping us to demonstrate to the wider PER community that our training was having a genuine impact. As outlined later in this report, the evaluation of these activities provided us with evidence of the impact of the programme, while also providing examples and case studies that were shared with future cohorts of training participants.

Input 7 – A role for an undergraduate project student in establishing a research project

During Year 1 of the project, we identified the potential to collect a range of high-value data from participants in our training programme that could support a more in-depth evaluation of the impact of our project than we might have envisaged at its inception. During 2018/19 we worked with a final year undergraduate project student to plan and implement a robust strategy

to analyse this rich data, ensuring that we adhered to established methodologies and an appropriate level of ethical rigour. The long-term goal is for the analysis of this data to support a publication, although his will require further longitudinal data collection and analysis, and further dissemination at conferences.

<u>Input 8 – The wider SEE-PER community</u>

The SEE-PER meetings, facilitated by NCCPE and UKRI throughout the project, have been instrumental in informing and supporting our progress by introducing us to collaborators, and providing peer support and review opportunities, all of which have enriched our activities and helped us to focus our work on successful approaches. Discussions with the University of Bath and STFC at the start of the project were particularly valuable in helping us to interpret and make sense of previous data/feedback around training for PER. This activity played a key role in the design of an effective protocol for running focus groups and collecting data to inform the design of a programme of training around PER. The Engage conference in 2018 was similarly beneficial, particularly presentations from colleagues in other HEIs on their training programmes, which were extremely informative for our work.

<u>Input 9 – Leaders at Southampton</u>

Continued institutional support has also been a key factor in the success of the project. We have been able to bring some of our leaders with us on our journey in enhancing our understanding the importance of PER and the role of training in underpinning it. At the same time, they have helped us to raise the profile of our new programme as a support mechanism for the delivery of effective PER. Our Vice-President (Research) contributed to the video that sets the scene for the first episode of our training programme, helping us to demonstrate from the very beginning that PER is an institutional priority here at Southampton. As the PI for the original project, this VP has been engaged in the project and has supported the project team at key points over the last two years, which is having positive impacts in terms of promoting the outcomes of the project and supporting sustainability beyond the funded period.

<u>R</u>ealising the aims and objectives of the project: the role of inputs and resources

As noted earlier, the ambitious longer-term aims of the project will take some time to come to fruition. The longitudinal nature of the activity required to realise these aims became apparent as the project progressed through its early stages The continuation funding has been instrumental in helping to provide a foundation upon which future work will be based to ensure that these aims are realised. The additional time to develop, test, deliver and improve our outputs, commence a research project and deliver a multiple iterations of the pilot training programme was very much appreciated and ended up being essential to the success of the project.

Additional funding also enabled us to sustain the raised profile of training for PER across the institution, hopefully helping us to build some momentum that is already enabling us to support more staff and researchers in training after the conclusion of the funded part of the project. In Year 2, the involvement of an additional staff member from CHEP, who participated in our training programme pilots and assisting us in refining them, as well as supporting the creation of a workshop for staff, helped to drive further progress against our aims.

That said, there is no doubt that the loss of the project manager from Dec 2020 will impact on some of the longer term growth plans for the project. However, there is sufficient involvement of other staff in the University to sustain key elements of project activity, but the development and enhancement of what has been built thus far would be greatly assisted through the continuation of a project manager-type role.

6. Assumptions and context

Our assumptions about extensive faculty involvement while designing the project were challenged by a major institutional restructuring, which involved a reduction from 8 faculties to 5 during 2018. We had been relying on key contacts embedded in the old faculties to enable a distributed, or shared, training model, but the restructure negatively impacted this, leading to somewhat reduced commitment in relation to other staff priorities. Unfortunately, this meant that it was not possible to establish a system of devolved delivery of our training programme by colleagues within the faculties during the funded part of the project as we had envisaged. However, we are continuing this work beyond the funded period as outlined under 'Sustainability', demonstrating our commitment to delivering on the long-term aims of the project.

While our project was blessed with strong participation from research staff, we perhaps had inflated expectations of the level of engagement we would receive from colleagues on full academic contracts. Our assumption evolved as we came to better appreciate the extreme challenges placed on such colleagues by the multiple demands on their time that limit their willingness to commit to activities that fall outside their traditional remit. If anything, this demonstrated to us the need to change the culture around PER, and validated our goal to ensure that PER becomes routinely encountered by staff in the early stages of their career journey; this would hopefully lead to a situation where colleagues would carve out the time required to participate. It would also ensure that the vital knowledge, skills and competencies required for effective PER would be acquired during a period when there are fewer competing demands, making it easier for additional activity to be assimilated into core business at a later stage.

The original proposal was written shortly before CHEP had officially come into being, and for the first 9 months of its existence, the Centre operated under interim leadership. When a Director and Deputy Director came into post, towards the end of Year 1 of the project, there was a period of adjustment as the strategy was refined and established. This changed some of the assumptions about how the project aims would be realised through activity developed in CHEP, although this also presented an opportunity in that PER was on the agenda for the Centre from day 1. As the project extends beyond its funded phase, the continuing involvement of colleagues from CHEP in delivering the longer-term aims of the project is testament to the commitment of the Centre to PER and the provision of high quality training in this area.

7. Activities and outputs

An outline of the fact-finding and research carried out during the first part of Year 1 of the project was included earlier in this report and this is not discussed further here. This section instead focuses on the nature of the training programme we developed and how it evolved over time as a result of continual processes of evaluation and reflection, input from participants and other stakeholders, and our work with our collaborators at Lincoln and the wider SEE-PER community. Although some discussion of the ongoing evaluation work is required to complement the narrative, the evidence itself is discussed in greater detail in the next section.

Implementation of the training programme

As noted previously, the 'State of Play' report highlighted the fact that the 'labelling' and format of any training provided are influential in determining how it is perceived by potential participants. In terms of branding, we felt it was important to have an attention-grabbing name for the programme. We settled on 'Getting Started in Public Engagement for Researchers' (GSiPER), as being clear and concise, essentially doing 'what it says on the tin'. A key feature of our design was the implementation of a 'blended-learning' approach, combining online activity with face-to-face sessions. This was devised in accordance with 'flipped classroom' methodology, where participants undertook pre-session activities that laid the foundation for work that was then done subsequently during scheduled sessions. The face-to-face sessions were designed around a sequence of group-based activities, interspersed with minimal didactic 'lecturing' to steer the participants and facilitate whole cohort discussion and feedback. The aim was to support 'active learning', where participants build their knowledge and skills through experience and reflection (see Figure 3 below for an example).

Figure 3: An example of a typical group activity in action during episode 3 (Diamond 9)

'Flipped classroom' methodologies have been utilised extensively by Co-I David Read (DR) in his teaching and such approaches are widely recognised as being beneficial in giving students the opportunity to assimilate and reflect on key concepts prior to their application in a face-to-face session. DR had previously utilised a similar approach in the delivery of CPD to schoolteachers, and it was clear that such pre-session work greatly enhanced the quality of the conversations between the teachers at the start of the subsequent session. With this in mind, some interactivity was included in the online activities in order to collect data that would inform the content of the face-to-face session. For example, participants were asked to give their own definitions of 'public engagement' and 'evaluation' as part of the pre-session work for episode 1, and their responses were then shared (unattributed) with the group so they could be critiqued during the face-to-face session. This ensured a more 'informed' discussion when the 'official' definitions of these terms were shared, which hopefully prompted participants to gain a deeper appreciation of their true meaning.

Our initial fact-finding had shown that many participants adopted the view that public engagement is more of an 'event' than a 'process'. We felt it was important to change this perception, so we built the training programme around the 'PER Life cycle' illustrated in Figure 4 below. Episode 1 aimed to give participants a broad overview of the processes involved in the design and delivery of PER, by presenting the whole Life cycle. In defining the purpose of PER, we knew it was important to emphasise the two-way interaction that is at the core of authentic public engagement, as per the NCCPE definition, as this element was missing from most of the definitions given by participants before the session. Furthermore, as it was clear that understanding of evaluation and its importance was lacking, this was also introduced in episode 1, to be developed further during episode 4. Our experience at the early NCCPE-mediated SEE-PER meetings was that evaluation was incredibly important to the project, and we recognised that planning for evaluation needed to be integrated into PER planning from the very beginning of the process and not just tagged on as an after-thought.
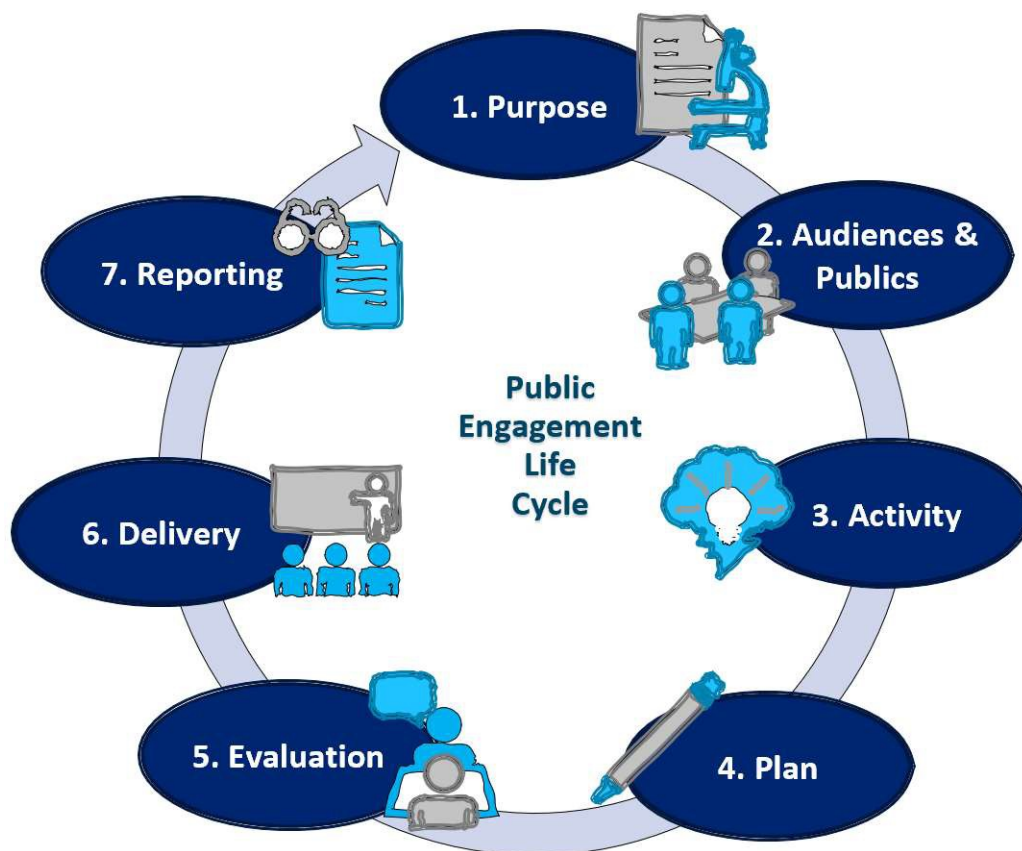

Figure 4: The PER Life cycle

Our design for the programme adhered to the principles of 'constructive alignment', a model that is widely applied in the design of educational programmes and their assessment at HE level. In this model, teaching activities and subsequent assessments are carefully designed to align with the learning outcomes defined for the session/module/programme. As well as being an entirely appropriate model to apply to the design of a training programme, we believed that the same principles applied to well-designed PER activity, as illustrated in Figure 5 below. We felt it was reasonable to define the purpose of a given PER activity through the lens of learning outcomes, an illustrative example being 'By the end of this activity, participants will be able to explain the importance of this research in their own lives'. We modelled the application of this framework in our delivery of the training, helping participants to see how they could apply the same approach to their own design of PER, and we saw ample evidence that this had a positive impact on their approach to their own work.
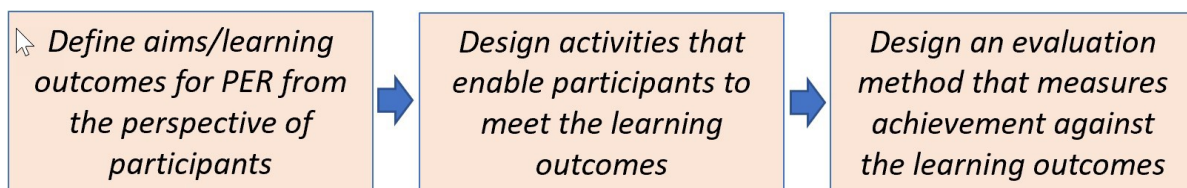
Define aims/learning outcomes for PER from the perspective of participants	→	*Design activities that enable participants to meet the learning outcomes*	→	*Design an evaluation method that measures achievement against the learning outcomes*

Figure 5: The application of constructive alignment to the design and evaluation of PER

We included the stages of delivery and reporting in our life cycle, partly to encourage participants to use their involvement in the training to plan some actual PER activity to be delivered after the completion of their training. As it happened, most of those attending already had an activity and/or event in mind, which perhaps influenced their decision to take part in the first place. As noted earlier, we offered a small amount of funding (up to £200) that participants could apply for. This would then necessitate them evaluating their work and sharing it with us via completion of a project report. We felt that this would make their participation in the training programme more authentic, by ensuring that they would have to apply their learning to their practice, while the application process and post-activity reporting would provide us with additional data that would support our own evaluation of the training and contribute to the narrative we wished to share with the community.

On moving to episode 2, which focussed on audiences and publics, we were keen to raise awareness of the multitude of different stakeholders that researchers might wish to engage with. Our initial fact-finding had shown that many researchers were focussed on an audience of schoolchildren, perhaps reflecting the relatively easy access to such an audience through schools outreach activity. Whilst this is a valid audience for PER, there are many other important groups to engage with, some of which are harder to reach than others. Interestingly, we would find that some of the participants in our programme had a requirement to work with patient groups, while others were targeting rather unique audiences, including the inhabitants or a remote island threatened by climate change in one case. As such, we identified that we needed to expand our own knowledge of how to engage with harder-to-reach groups in order to be able to meet the needs of our own participants.

A key element of episode 2 was a focus on the importance of clarity of communication, without a sense of 'dumbing down'. Participants worked through a sequence of activities with partners from within the cohort who were unfamiliar with their area of research, and practised communicating aspects of their work using terminology that would be accessible to the lay person. They were tasked with preparing an 'Elevator Pitch', which they would then present to the group at the start of episode 3 in a 30 second slot that would provide a 'hook' to engage the audience. Following the Elevator Pitches, the remainder of episode 3 focussed on activities and planning, emphasising the complexity of effective PER and the importance of a

team approach. Throughout this episode, participants worked with their peers to share ideas and work together through the planning process, helping them to develop vital skills needed for PER that are important 'transferrable' skills that we seek to develop in our postgraduates, but are typically difficult to embed within day-to-day activity.

As noted above, we found that understanding of evaluation was limited amongst participants in our fact finding, so we focussed the whole of episode 4 on this essential stage in the PER life cycle. In the initial pilot, this was rather a dry session that was perhaps the most 'facilitator-led' of the 4 episodes. However, to enhance later iterations of the training, we included of case studies based on the evaluative work carried out by participants in first the pilot in relation to their own PER activity (see 'Outcomes and impact'), which have greatly enhanced this particular episode for later cohorts.

Gauging the impact on participants: evaluation methods, and genesis of a research project

Numerous opportunities for data collection were built into the sequence of activities participants undertook throughout the training programme. We utilised the pre-existing 'Factors affecting Public Engagement by Researchers' survey, created by the Wellcome Trust, to probe the perceptions of participants before and after the training and shed light on the impact of the programme in changing mindsets. Progress against learning outcomes was routinely assessed at the end of each episode, and participants were asked to complete a reflective journal after each face-to-face session. The reflective journal had two purposes (i) to support consolidation of learning from each session in alignment with Gibbs' reflective cycle and (ii) provide a rich source of data to support our evaluation of the programme. An additional evaluative questionnaire relating to the perceived quality of the training was issued at the end of the training programme.

As noted previously, the participants who went on to successfully bid for seed funding after the programme were required to evaluate their work. As part of this process they were required to submit (i) an interim report after they had planned and developed their activity, (ii) an evaluative report after first delivery of the activity, and (iii) a reflective report 18 months after first delivery of the activity. These documents provided another source of data to inform us about the impact of the training on the participants and the quality of the PER activity they had designed and delivered. There were a small number of other informal opportunities to collect evaluative data in the form of pre-delivery 'How's it going?' and post-delivery 'wash-up' sessions which a small number of funded participants attended. During these sessions, thoughts and comments were captured through the collection of post-it notes which were added to the dataset.

Our Year 2 business case outlined a proposal for a research project to facilitate a more rigorous and robust analysis of the data we were collecting. As our project manager did not have a research background, support was provided in the form of an undergraduate who was deployed to support the design and implementation of the research project for her MChem final year project. The key goals for this student were to:

i)   Perform a more thorough review of the literature around PER training and research perceptions of PER/PER training.

ii)   Create appropriate data collection tools (surveys and reflective journals) to use with participants.

iii)   Obtain ethical approval for the use of data collected during the training in the research project

iv)   Manage an analysis of the data using quantitative and qualitative analytical methods where appropriate.

In view of the inherent limitations of undertaking a research project on such a short timescale, we took an exploratory approach, using qualitative analysis methods to identify key messages that support the dissemination of our training activities/resources and the lessons learned from our evaluation of their impact. Data collection and analysis will need to continue beyond the funded phase of the project in order for robust claims to be made about the impact of our work on PER activity more broadly. The design of the training resources means that the mechanisms for data capture are embedded in a manner that ensures it is possible to continue the research beyond the funded period of the project.

Refining the training iteratively through experience and reflection

Following the success of our first training pilot, we received further expressions of interest from 35 researchers to attend further training, which encouraged us to bring forward our plans to deliver additional pilots. This accelerated the process of review and reflection on our experiences and supported the enhancement of our training resources to deliver an improved version to the second cohort. The process was informed by the content of the reflective journals that training participants completed during the course of the first pilot, as well as our own evaluation of the success of the various activities deployed in the different episodes. Many evidence-informed enhancements were made, with some examples including:

- Episode 2 included an activity titled 'draw your research', which required participants to create a simply cartoon-style depiction of their research that would be accessible to a non-specialist. This encourages researchers to think about their key messages, their prospective audiences, and how to 'cut the jargon' when doing PER. We found that some participants launched into this activity with some aplomb, while others were hesitant about getting started. We asked two of the participants who had done well on this task to be filmed while drawing their cartoon and to provide a narrative outlining the thinking behind what they drew. These videos (see screenshots in Figure 6 below) were then incorporated in the online activities that later cohorts completed before attending episode 2, giving them an opportunity to see good examples and think about how they could communicate their own research in a similar format in advance of having to actually do it themselves. This had the desired impact in that all participants were able to engage in the task quickly, freeing up more time for the important discussion that followed.
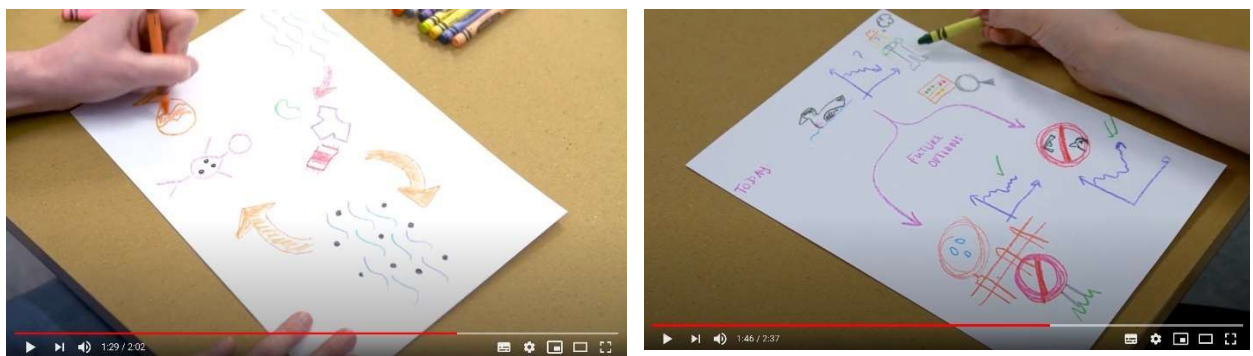
Figure 6: Pilot 1 participants in 'Drawing your research' videos to support later training cohorts

- We also used an evaluation activity created by a group of participants in our first pilot for an exhibit they created for our Science and Engineering Festival in March 2019 as a case study for pilot 2 participants to learn from and critique during episode 4. This helped to transform the episode, representing a tangible example that brought the process of evaluation to life by utilising a context that participants could relate to. It was evident that this was a more enjoyable and successful approach than the rather dry delivery to cohort 1.

- We learned that inviting external speakers (e.g. the Impact Officer from Winchester Science Centre and the Schools and Universities partnership officer from the Centre for Higher Education Practice) provided an opportunity for our participants to learn about tangible PER activities they might engage with, and also to network with these useful contacts. The accompanying opportunities for Q&A further enhanced the learning experience. With this in mind, we expanded the range of colleagues we invited to support our sessions and this proved to be popular with participants.

Expanding the scope: Workshops for academic staff

While our training programme was promoted widely to academic staff, registrations for all 3 pilots only came from postgraduate students and research staff such as postdocs and those on fellowships. In many cases, those who registered had done so on the recommendation of their supervising academic, but no academics signed up themselves. To address this, we created a 1 hour workshop titled 'Public Engagement as a Route to Research Impact: Overview and training opportunities', which is now an established component of the regular CHEP CPD programme that has been attended by over 30 participants (cumulative overall rating of the event 4.5/5, rating of presentation/facilitation 4.7/5). The workshop draws on content from the full training programme and outlines the further training that is available. The feedback from participants has prompted us to move towards an integrated programme of training for academics and research leaders, and those who work in their research groups, as discussed under 'Sustainability'.

Further activities and outputs arising from our SEE-PER project

By capitalising on established PER opportunities at Southampton (Science and Engineering Festival, Hands on Humanities Festival, Human Worlds Festival etc), our training participants have been able to hone their PER skills and enhance their confidence by showcasing their work at a well organised and popular event, with an engaged audience and full organisational support. These events represent an important complement to our training and have enabled our training participants to complete the whole 'Public Engagement Life cycle'. As noted previously, We used some of our UKRI funding to support small grants in the form of 'seed funding' for PER activities, which were applied for by a number of individuals from across all 3 cohorts, with additional funding secured from CHEP to continue this approach during our 3rd pilot which took place after the UKRI funded period had ended. This is discussed in more detail under 'Outcomes and impact'.

One of the key aims of Year 2 was to broaden participation in our training to other disciplines beyond those in the sciences and engineering that have been more traditionally involved in PER at Southampton. To deliver on this aim, we took the opportunity to present findings and outputs from the SEE-PER project to academics and researchers across the institution via Faculty seminars and meetings. We were delighted to find that this sparked interest from across the discipline spectrum, and it has been particularly valuable for the project team to work with colleagues from Arts and Humanities and Social Sciences, particularly where they have worked alongside scientists and engineers during the training, bringing new perspectives and ideas that have enriched the discussion and ensuing outputs delivered.

8. Outcomes and impact

<u>Engagement with training pilots and the response from participants</u>

Engagement across all iterations of our training programme was excellent, given our capacity of 16. The first pilot was initiated with a specific group of researchers from Chemistry in mind, and was advertised to researchers in other related departments prior to scheduling. A number of participants from other science and engineering disciplines joined this pilot, giving 16 attendees at the first session. The second and third pilots were promoted widely across the whole institution and started to draw participants from outside the sciences, with 15 and 16 registrations respectively. 5 additional participants joined for specific episodes that were relevant to their individual needs during the 3 pilot programmes. It is unquestionable that the fact that the demands of 4 x 3 hour face-to-face sessions were a challenge to very busy participants, but most were able to attend at least 3 of the 4 sessions. In total, 32 individuals from 3 cohorts attended all 4 episodes and received a certificate. Participants who completed all 4 episodes took a post-training survey, the results of which are illustrated in Table 2 below. As the data shows, the response was overwhelmingly positive, indicating that the training did indeed achieve its objectives of providing a high quality and high impact experience for participants. More valuable insights about the impact of the training were gained through analysis of the qualitative data collected from participants, as discussed later in this section.

Question/prompt	% of responses (32 respondents)				
How did you rate the quality of the training overall?	Very good	Good	Neutral	Poor	Very poor
	66%	34%	-	-	-
My confidence to deliver PER increased as a result of the training	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
	28%	63%	9%	-	-
The training developed the skills I need to deliver PER activities	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
	56%	38%	6%	-	-
The skills I developed in the training will be useful in my future career	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
	38%	53%	9%	-	-
Working with others on group activities had a positive impact on me	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
	59%	38%	3%	-	-
I am more likely to participate in PER activity in the future after taking part in the training	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
	63%	34%	3%	-	-

Table 2: Participant responses to a post-training evaluation survey

Motivating our training participants to prioritise all training activities (4 online components and 4 face to face components) and complete their reflective journals as 'homework' was a challenge, mostly because of the competing demands on their time rather than an inherent

lack of motivation. We supported participants through frequent supportive communication and reminders about opportunities to put their learning into practice. We learned that to deliver the training programme efficiently, a considerable amount of administrative effort behind the scenes was required. With the departure of our project manager and a natural reduction in staff time available to support this, discussion about the future planning and administration strategy for central and local faculty delivery is of high importance, as discussed under 'Sustainability'. Overall, completion rates of pre-session online activities were excellent, being almost universal, although completion of the reflective journals was variable. Nonetheless, reflective journals allowed us to gather more detailed, robust feedback than would otherwise have been possible. Online reflective journals also provided us as trainers with an opportunity to provide instant personalised feedback to individuals to solidify/progress their learning further and address any concerns raised.

Initial findings of our research project: What was the impact of our training on participants?

Initial findings of the research project indicate that we achieved our ambitions to i) provide relevant, accessible and timely PER training that culminates in the creation of a PER ideas and/or activities, and ii) ensure that researchers are fully informed about PER and are confident to engage with different types of audiences and publics. The reflective journals that our participants completed ensured that they consolidated their learning after each face-to-face session, while also providing us with valuable qualitative data that allowed us to monitor perceptions throughout the programme and identify a range of impacts. In line with good research practice, we obtained ethical approval for this work and sought the consent of participants for their data to be included in the research project and subsequent outputs.

Once participants had confirmed their consent for us to use their reflective journal responses, we collected the data together and analysed it using the software NVivo. We applied the methodology of thematic analysis, in which we scrutinised the data for emerging themes i.e. recurring topics or ideas in participants' responses. For the purposes of communicating the outcomes in this report, we have presented a number of 'soundbites' under 4 broad themes: Quality of the training programme (Figure 7); Impact of training on confidence (Figure 8); Impact of training on skills (Figure 9); and Impact of training on futures (Figure 10).

"The training was excellent - I enjoyed the hands on activities, especially the elevator pitch. The whole programme was well thought through and the online activities tied in well with the face-to-face sessions."

"It was very well delivered, with careful thought about helping each person achieve their aims. Lots of practical activities made it easy to engage with the training.."

"…its main strength was the interaction with other students and the feedback received from them."

"It was excellent and I have already recommended it to a few new PhD students."

"The training is high quality… I expect the training to be a positive experience to all researchers."

Quality of the training programme

"I thought the training was really well done and thought through. It was comprehensive…the practical tasks meant we had to engage with what we were doing."

"It was fun and informative. I felt engaged throughout the sessions and the before/after session work did not take up too much time. 10/10 all round."

"I hope that you can continue to run this brilliant course, it was one of the best training experiences of my PhD!"

"I really enjoyed the course and I also recommend it to other PhD friends. I think the course is more practical than other public engagement courses."

"Superlatively high. Consistent quality of material and the presenters were brilliant communicators."

Figure 7: Soundbites from participants' reflective journals in relation to the quality of training

"I have become more creative in how I could do public engagement…it encouraged me to find new ways to reach a wider audience, such as media and social media engagement"

"Confidence has been growing, mainly as a result of the group activities. It really helps to explain your research to non-specialists. This has also helped me to be more confident in presenting to different audiences in general."

"The elevator pitch and drawing your research activities were crucial in improving my confidence."

"I feel more confident to explain my research project in simple terms to other people and more assured about the planning process."

"Far more confident now due to the chance to talk to each other and discuss different ideas."

Impact of training on confidence

"I believe that my self-confidence improved a lot through this training. I don't think that it was a certain activity but the whole training in general."

"On reflection, and having now received training in how to distil a research idea into an activity, and how to actively receive constructive feedback, I understand now that Public Engagement with Research is indeed a cyclical process. With this in mind, I'm more confident that the activities I deliver are genuinely impactful to my research."

"I have developed confidence talking about my research and I now know ways of effectively engaging with different audiences."

"I am much more confident in the planning and implementing stage of PER…The session that helped me the most was the activity that we wrote all the jobs down on post it notes and arranged them in chronological order. It was much more tasks than I had first realised!"

Figure 8: Soundbites from participants' reflective journals in relation to impact on confidence

"the course definitely helped me understand what is involved in the planning stage. Especially with respect to feedback gathering."

"it encouraged me to think of new ways to explain what I do. For example, when we had to draw our research I thought this wouldn't work for my topic but it did. It was also helpful to meet researchers from different disciplines and explain my topic to them."

"I think the best part of it is that it allows for a lot of interaction with researchers from different disciplines. This has helped me to realise what other people find most interesting about my research and how to explain it to different audiences."

"The different ways of gathering feedback has helped me think about designing useful ways for feedback gathering. It has given me inspiration on how to get more meaningful data."

"I used the skills I learned to think about interactive activities to get people involved, the value of ice breakers, how to set up the room, and the importance of evaluation."

Impact of training on skills

"I have learnt a lot about the process of organizing the public engagement events, including the different ways to engage different groups of audience …I like group activities because they allow me to learn more from other PhD students."

"it has improved my communication skills and empathy towards people."

"I learnt a lot about planning. There are more jobs than I realised for a PER activity and those need to be allocated time over a few weeks/months/years.."

"have progressed my skills to simplify complex concepts and demonstrate them through multiple analogies. To further take into account the needs of the people engaging with a PER activity."

"I have developed a more holistic and structured approach to designing activities, through looking at the PER life cycle."

"I have tried to take a more open approach when engaging with people at the NOC open day, leading with open ended questions and not over powering people with what I want to say but judging what it is that they most need out of the engagement."

Figure 9: Soundbites from participants' reflective journals in relation to impact on skills

"I am now considering how to move forwards after the PhD and public engagement is a strong contender for me. I love interacting with people and planning/organising events. I wouldn't have thought of doing PER full time before these sessions."

"It is useful to have public engagement on my CV as employers are keen to see that sort of experience both in and out of academia, so this course has helped both with having training on my CV and encouraging me to get actual experience of it."

"It will greatly improve my CV and therefore future job aspects as I add more PER activities to my repertoire. Also no matter what job I take on in the future I will always try incorporate some PER into it."

Impact of training on futures

"I have realised how much I enjoy teaching, designing engaging materials for workshops and interacting with different audiences."

"Whatever career I choose, the skills and knowledge that I have learnt from the course will help me design and organize the events as well as better present my ideas."

"This week I have an interview for a Post-Doctoral research position. The proposed project relies on my public engagement skills as the first phase of the project consists of a set of public consultations."

"I think there is a crossover between the skills I learned and Patient and Public Involvement in research, which is a really important part of what I do now, so I am very grateful to have completed such a fantastic and interactive course in this area."

Figure 10: Soundbites from participants' reflective journals in relation to impact on futures

The comments and quotes presented in Figures 7-10 speak for themselves, but there are some key headlines that should be emphasised here. Key factors in identifying the provision as high quality (Figure 7) were the 'hands-on' nature of the activities and the interactions with others, particularly those from other disciplines. The training was identified as being comprehensive, and the combination of online work with face-to-face delivery was seen as a strength. As our fact-finding work had identified that many researchers lacked confidence to get involved in PER, this was one of the key areas we wanted to address. As shown in Figure 8, there is ample evidence that we were successful in this endeavour, with the active nature of the training being cited by participants as instrumental in enhancing their confidence levels. While there was evidence in some of the sessions that participants were daunted by the magnitude of the task of planning and delivering PER, the support provided in the training and the 'real-world' examples encountered helped them to break down the challenge into manageable steps. It is particularly pleasing that some participants pointed towards their enhanced knowledge of the PER life cycle as being important here.

We wanted to judge the impact of the training on skills development and participants thinking about longer-term career objectives. There was extensive evidence that a broad range of skills had been developed (Figure 9), ranging from empathy towards people, through planning and organisation to evaluation. Participants were clear that the skills they had developed through this training and subsequent PER activity would be useful to them in the future, whatever pathway they would follow. In relation to longer-term futures (Figure 10), some participants noted that their CVs would be strengthened through this activity, while others noted that new career pathways had been opened up to them.

As noted previously, this research project is ongoing. While these interim findings are extremely positive and demonstrate that the training programme met its objectives, we are not complacent. Through our ongoing work, as outlined under 'Sustainability' we will continue to monitor the longer-term impact of the training by asking participants to inform us of future work and to tell us how the training and their evolving understanding of PER has influenced their activity. This will tell us more about whether changes in culture as a result of engagement in this kind of training are simply temporary, being manifested only in the first flush of enthusiasm after the event, or if they are more permanent in nature.

Putting theory into practice: seed funding for PER activity

Although our SEE-PER project was in the 'Challenge' category, it is clear that there has also been a strong contribution to 'Embedding'. We have endeavoured to leverage the project to further expand PER activity at Southampton throughout the project, most specifically through the training programme itself. As discussed previously, participants were invited to submit a short proposal for funding to implement a PER activity, which required them to outline clear aims for their engagement activity, a coherent plan for what they would do in practice, and a viable methodology for evaluation. We felt that this would make their participation in the training programme more authentic and genuinely experiential, by ensuring that they would apply their learning to their practice, while the application process and post-activity reporting would provide us with additional data that would support our evaluation of the training and contribute to the narrative we would share with the community. The process was valuable in terms of assessing the impact of the training, as the quality of the applications was a reflection of what the participants had learned during the programme. Although our assessment of the proposals was 'light touch' in nature, we did provide some feedback, particularly on the evaluation plans, which helped to strengthen the activity that was delivered.

In total, 13 participants in the 3 iterations of the training programme submitted proposals and created activities. We were impressed by the quality and range of activities that were proposed, and it was evident that the fact that participants had been able to 'brainstorm' ideas and refine them through the discussions that took place during the training had a positive impact on the proposals. Some of the activities that were supported by our seed funding are outlined in Table 3, with photographs of 4 of the activities shown in Figure 11.

Figure 11: Photographs of activities created by some of our funded participants. Clockwise from top left, the activities are: 'Pregnancy pinball', 'The not-so-common Eider', 'Canyon Corals' and 'Climate change in vulnerable communities' (in the Soloman Islands).

Activity title	Brief outline
The Not-so-common eider: modelling populations	Hands on exhibit using a simple game to illustrate mathematical modelling, differentiated to engage young children, teenagers and adults.
Build an Oyster Reef	Interactive video activity followed by participation in group creation of a model reef over the duration of the event.
What do batteries, bling and diabetes have in common?	An interactive physical model to explain fundamentals of electrochemistry and highlight it's importance in a range of day-to-day activities.
Crystals under a microscope: from molecule to crystal	An activity exploring the nature of crystals using microscopes, followed by participation in a competition to encourage engagement to improve understanding of scale.
Pregnancy pinball	A pinball game to demonstrate the complexities of the physiology underpinning pregnancy, and the impact of factors such as diet, alcohol and smoking.
Canyon Corals	A 3D model of a submarine canyon incorporating an interactive task using magnetic 'vehicles' to collect magnetic tabs and investigate different coral environments underwater.
Opera in Creation, An Immersive Experience	An interactive storyboard activity for participants to relate well known stories (e.g. Cinderella) to their operatic counter-parts.in increase enthusiasm towards operas.
Climate change in vulnerable communities	Interactive activity and game where the audience identifies features that are vital for tropical island livelihoods on a map and will learn about how livelihoods might be impacted by climate change in the future
Geology and tectonic hazards	Interactive workshops to provide support, advice and education to teachers and youth group leaders across the UK, outlining the science behind tectonic events and what to do when one occurs.
Listen Up!	Tablet-PC based activity that demonstrates the remarkable human ability of understanding speech in noise, and introduces some examples where technology can harness this ability to help people who are hard of hearing.
How to be Fair in Theory	An interactive app (with leader board) to show and explain fairness in resource distribution, and demonstrate how this applies to future systems like localised energy markets.
Back in Time: Muddy Time machine	Participants dismantle and explore a model of an environmental core made from sections of coloured clay to look for clues (clay figures of pollen, critters etc) that help to identify how the environment has changed in the past.
'The Social Universe' Podcast session	Inviting members of the public attending a science and engineering festival to contribute 'vox pops' to a podcast exploring the contributions of social science to the 'hard' sciences.

Table 3: Outline of activities proposed and implemented by training participants

The brief project reports submitted by participants who received funding were valuable in highlighting further positive outcomes. The activities generated by our participants were experienced by thousands of visitors to the University, many of them at the Science and Engineering Day in May 2019, and a range of evaluation data was collected in response to

these activities. The depth and quality of the evaluation undertake was somewhat variable, but it was generally more substantial than we have seen across activities at such events in the past. The data collected by one group of our participants is supporting a REF submission:

> *"We are writing a REF impact case on the Electrochemical Circus*
> *programme of activities, and some of the data included has come from*
> *activities developed during and after participation in this programme." -*
> EPSRC Programme Grant Manager

We will continue to strengthen this aspect of our provision going forwards, as outlined under 'Sustainability', since we recognise that evaluation is a critical component of PER in building a stronger case for the value of PER and helping to induce cultural shifts necessary to expand activity and to enhance its quality.

A recurring theme was that participants found that going onto deliver a PER activity was important in 'closing the loop' i.e. in ensuing that they completed the whole PER life cycle, putting their learning into practice in the process. This aligns with our objective to provide experiential learning for our trainees, and to create the 'winning combination' of training and practice that was recommended in the 'State of Play' document. The first batch of 18 month reports will be due in mid-2020 from those who developed PER activity after our first training pilot, and these will hopefully shed further light on the longer-term impact of the training. At the time of writing, we can share one recent quote from one of our most engaged participants:

> *"in my Twitter bio I now describe my project as being composed of:*
> *population modelling, conservation, **and** public engagement… I strive*
> *for meaningful engagement with the project by those outside of*
> *traditional academia, such as practitioners, policymakers, and the*
> *general public, and now I feel much more prepared and confident in*
> *continuing to pursue that goal!"* – Cohort 1 training participant

The above comment, along with numerous others, demonstrates that evidence is emerging of a shift in terms of how PER is defined and perceived in the minds of researchers who participate in training of this nature, which, if applied more widely, could lead to a change in culture. However, much more work is need to extend that cultural shift more broadly across the institution.

<u>Engagement with (and by) the wider higher education PER community</u>

Another success has been the links we have made with the wider HE PER community as a result of the SEE-PER project, as facilitated by NCCPE and UKRI and the creative approach to managing meetings of project partners. When initially investigating possible formats for our PER training programme, we engaged with other Universities including Reading, Bath and Bristol, who generously shared their experiences and best practice for creating and delivering PER training modules. These discussions provided broader evidence of the suitability and relevance of our training plans and helped us to formulate a programme that would have broader applicability.

As noted previously, a real breakthrough in terms of the success of our project came with the development of a strong partnership with the University of Lincoln 'Public Engagement for All with Research at Lincoln' (PEARL) team to co-create resources and refine our proposed training programme, prior to running training pilots at both institutions. One of our ambitions was to create sustainable resources that could be shared with the wider sector. The partnership helped to raise the profile of the training programme amongst other SEE-PER project teams and led to some of the project teams (Keele and CEH that we know of) adopting elements of the training programme themselves. We have supported the dissemination and

wider rollout of our training by creating a bank of activities, videos, surveys, online reflective journals, an image library and evaluation questionnaires. Session plans, accompanying PowerPoint presentations and participant packs for each episode have been made available, and are entirely customisable to support adaptation to different contexts. All of our training resources have been made available online (via Google Drive), and we hope to work with NCCPE to make them as widely available as possible going forwards. The profile of the project has already extended beyond the immediate SEE-PER family and it has been influential in a review of training at UCL, as outlined in the following quote:

'The Southampton SEE-PER project uses a fantastic holistic approach of flipped learning, reflective practice and a fully-fledged journey into public engagement which has provided the inspiration to reviewing our internal training offer. We have already made changes based on the lessons they have learned, such as: incorporating our online resources into our face-to-face content, increasing the amount of practical skills development vs theory and we are exploring opportunities to anchor our training, moving away from a scatter-shot approach to this pedagogically rigorous learning journey that the Southampton team have created'
- Dr Ben Littlefield, Public Engagement Manager (BEAMS), UCL Culture

Other outcomes influenced by the SEE-PER project at Southampton

A number of developments during 2018 and 2019 were informed by learning from our SEE-PER project, and these will have a lasting impact here at the University of Southampton:

- a new 'Public Engagement and Outreach Award' was added to the annual Vice Chancellor's Award categories , joining the existing 'Roadshow Awards' for outstanding PER activity and commitment, and the annual PER Showcase celebration that is a highlight on the PERu calendar;

- the Public Engagement Hubs, based around three broad themes, galvanized connectivity between University researchers and local community groups, and these have been supported by engagement with the SEE-PER project'

- an online mapping tool has been developed to map institution-wide external engagement activity to facilitate shared learning and the dissemination of best practice.

- PERu has developed an on-line version of the EDGE tool which can be used to benchmark and track perceptions over time about Southampton as an engaged university; this can be used flexibly with specific groups of staff/researchers, or more generally across the institution to take stock more broadly.

This additional good news story came from a colleague who participated in co-deliver of the first training pilot:

"I think the most important thing I gained personally was an understanding and awareness of the knowledge that I hold in this area, and a building of my confidence. Materially speaking, this work formed part of my application for promotion, which was successful. It provided me with a forum to showcase my abilities in this area and tangible outputs besides just delivery."
– Dr Josephine Corsi, University of Southampton

Such individual stories may be rather small scale in their own right, but they contribute to the positive narrative we are building in relation to the value and importance of PER training and will help to win more hearts and minds as we continue our work in this area. Our aim is to continue breaking down barriers to further raise participation in PER training by capitalizing on the momentum built up as a result of the SEE-PER project and the energetic contributions of our participants.

9. Sustainability

Given the short timescale for this project, sustainability has been a key issue for us from the very beginning. We have identified a number of aspects of the project that we would like to take forward in the future. In order to achieve this, Co-I David Read (DR) has extended his secondment to CHEP, albeit at a reduced 0.2 FTE level, which will ensure that expert support for PER training continues to be available beyond the scope of UKRI funding. DR will form a delivery team, with a member of staff from PERu and other colleagues embedded within faculties to take this work forward between 2019 and 2021. The Doctoral College will continue to be key partners in raising awareness of the training programme, hopefully increasing the demand for training that will help us to justify its longer-term provision. We have met with other 'outward facing' colleagues in Public Policy and Outreach to discuss how the training could be developed for staff to learn more about those particular audiences, which will further support the sustainability of the project.

The success of the training thus far, with ~50 researchers participating and providing extremely positive feedback about its impact, indicates that our programme has gathered some momentum of its own, and we have received regular enquiries from potential participants by virtue of 'word-of-mouth' publicity. In order to be able to meet this emerging demand and maintain momentum, it is important that we continue to work towards our initial aim to develop a distributed model for PER training that can be delivered locally within faculties and/or departments, rather than centrally. Our project was designed to support this transition through two key strands of activity:

1) Developing a 'blended learning' training model, with a substantial portion of online activity, supported by experiential learning and reflective evaluation. The model was designed to be portable so it would lend itself to delivery in within different faculties across the institution, facilitated by multiple individuals on a continuing basis. To support this, detailed session plans and resource packs were created to enable colleagues to deliver the training with minimal input from the 'centre';

2) Embedding training for PER across a range of doctoral researcher and staff professional development programmes as part of the Centre for Higher Education Practice (CHEP) and Doctoral College remits. Researchers can now be expected to "routinely encounter" training for PER from early career development through to more advanced career stages through professional development programmes, although further work is needed to extend this to leadership training to capture more senior colleagues.

As noted elsewhere in this report, progress towards the development of a truly distributed model for our training programme was curtailed by the restructuring of the University that took place in the middle of the project. However, by the end of the project we had identified staff on 3 of the 5 new faculties who would deliver training locally, initially in collaboration with DR and CHEP, with a view to ensuring it is fully embedded at local level in the longer term. To support this more effectively, we are producing a 'train the trainer' pack and workshop to ensure that those delivering the module have the support they need in an interactive format, enabling them to provide training of a consistently high quality. This will create an incentive for faculties/departments to keep these activities running from year to year, and will allow them to offer the training to researchers at all levels.

To address the issue of low participation by academic staff in PER training, DR is collaborating with a colleague from PERu to develop a 3 hour workshop to be piloted in mid-2020. This will draw on content from the full training programme, providing a broad overview of the PER

life cycle and how an academic or research group leader can provide leadership and oversight for the development and delivery of PER activity being developed under their guidance. This represent one part of an 'integrated' model, which would be complemented by members of the research team completing the full training programme, as illustrated in Figure 12 below:
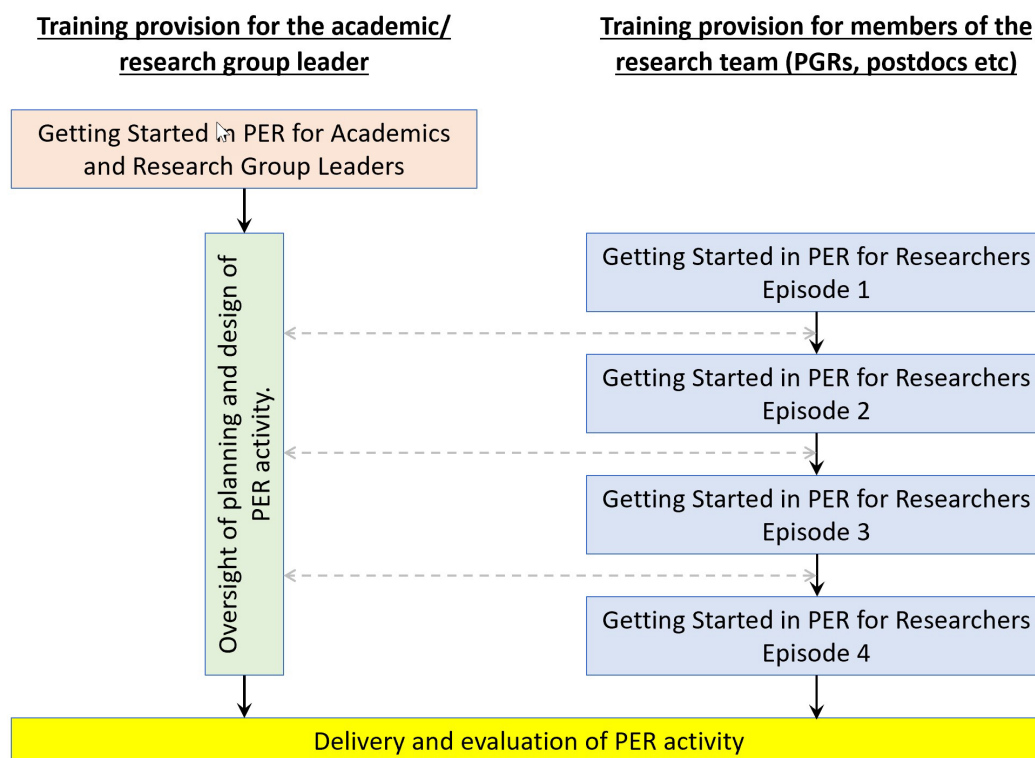

Figure 12: An integrated model incorporating initial training for an academic or research leader, followed by training for members of the group.

The goal of this integrated approach is that is that the academic or research leader will then work with their research team on the development of a PER activity that they will co-deliver at a subsequent event. As outlined earlier, we will emphasise the importance of evaluation in both strands of the training, ensuring that academics recognise the value of evaluation data in supporting future research proposals, reports and REF submissions. The key indicators of success in these endeavours will be strong participation in training that has be delivered autonomously within faculties, and the subsequent widespread involvement of those participants in actual deliver of PER, although in practice this is likely to require continued input and support from CHEP (via DR) for the foreseeable future.

Evidence for the sustainability of our project outcomes in a sectoral context is reflected in the fact that elements of our training programme have been used at other organisations, demonstrating that we have succeeded in developing a portable package of resources that can be utilised in different contexts. Colleagues are able to take a 'pick-and-mix' approach, where elements of our package are compiled into a bespoke programme to suit local needs, highlighting the versatility of the resources created. We feel that our work, supported by our strong partnership with the Lincoln project team, represents a highly valuable contribution to the wider HE PER community, and one that would not have been possible without SEE-PER funding.

10. Final thoughts

Much of this report has been concerned with the design, implementation and evaluation of our training programme. The evidence presented shows unequivocally that we delivered a high quality programme that has generated myriad benefits for participants and has supported the creation of an exciting new catalogue of PER activities in its wake. Moving forward with a new integrated approach to staff and researcher training in PER, we are well placed to capitalise on the positive outcomes of our SEE-PER project and further embed PER on the wider academic agenda here at Southampton. The portability of our resources to other contexts and their use elsewhere demonstrates that our project leaves a valuable legacy for the wider PER community as well as our own institution.

There is still much work to be done. As discussed under sustainability, the continued difficulty of engaging academic staff in PER training poses a significant challenge. Additionally, broadening involvement in PER by researchers who are less naturally pre-disposed to participation, perhaps a 'silent' majority, will require a change in perception about what is most important in the busy and demanding nature of a life in research. Such changes could be encouraged by institutional-level cultural shifts that so often drive behaviour 'on the ground'. Here at Southampton, the collaboration between CHEP, an institutional Centre that supports academic professional learning, and our Public Engagement with Research Unit, engendered by the SEE-PER project, has been instrumental in moving us along the pathway to such a cultural shift. We believe that we can continue to drive this shift by ensuring that training in PER is routinely encountered by researchers and academics at different stages in their careers. As we have shown, participation in training can drive 'micro' cultural change, i.e. shifts in perception on an individual level, which if extrapolated across an organisation would represent a significant shift in culture. With this in mind, the broadening of participation in training may help to drive a more universal culture change around PER.

Our discussions with colleagues in other institutions indicate that the challenge of enhancing the take up of training and CPD for PER is widespread. In order to address this challenge, we recommend that other HEIs identify opportunities within their own existing frameworks of staff training and development in which elements of PER training can be incorporated. Ideally, this should include the postgraduate certificate programme that academics are required to complete at most institutions, as this will ensure that it is encountered universally and at a career stage where there may be more capacity to engage. At the same time, it is important that PER continues to be encountered at more advanced career stages, where CPD workshops could be implemented that target areas in which academics regularly seek support, such as writing successful grant proposals, evidencing impact for REF and leadership training. We recommend that such work is undertaken as a collaboration between experts in PER and those responsible for the provision of training to academics within an institution, as was the case here at Southampton. To further incentivise participation in PER, it is also vital that HEIs recognise this activity in reward and recognition, as a failure to do so discourages time-poor academics from prioritising public engagement over other activities on which their career progression depends.

Funding is critical to guarantee the future of PER. Whether that funding is provided externally, or is allocated internally within institutions, it plays a vital role in providing a framework around which PER activity can be developed. The funding provided in this case has been instrumental in the success of the project and the strength of the outputs generated. Should the training continue to be provided on the expanded basis outlined under 'Sustainability', both at Southampton and beyond, and funded entirely by HEIs, then it could be argued that this represents good value for money based on the initial UKRI investment. It is quite clear that without SEE-PER funding this would not have happened, which would have represented a significant missed opportunity. This, along with the success of other SEE-PER projects, demonstrates that continued funding of embedding and challenge projects has the scope to

have a large impact on PER activity across the sector and we would urge UKRI and other funders to continue to issue innovative funding calls to further expand the scope of such work in the future. Beyond this, UKRI has the power to drive participation in PER by raising its importance in research proposals, final reports and REF submissions; such requirements can be highly influential in driving behaviour. By raising the profile of PER in this way, funders will indirectly incentivise participation in PER training programmes, which, as we have shown, have the potential to change individual perceptions and drive broader culture change.

NCCPE has a key role to play in continuing to persuade our leaders that PER is a strategic priority, as well as providing valuable support at the grass roots level. In order to further encourage institutions to provide training opportunities around PER, and to ensure that these are taken up, we would recommend that NCCPE considers strengthening the messaging around the importance of the high quality training that underpins effective PER. This could be done, for example, by working with Vitae to increase the prominence of PER in the Researcher Development Framework; as our research project shows, participation in PER training has led to the development of a plethora of skills and personal qualities that extend across all domains of the RDF. With this in mind, it is clear that expanding the provision of PER training, and by extrapolation, PER activity, has the potential to generate desirable impacts beyond the realm of PER for researchers, institutions and society more widely. We would also urge the continued involvement of NCCPE in future UKRI funded programmes. A key driver of the success of the wider SEE-PER programme was the excellent management/facilitation of meetings by colleagues from NCCPE, which was always creative and highly varied in nature. This helped colleagues from a disparate range of institutions to get to know each other well, helping to forge collaborations that greatly enhanced the outputs of several of the projects to the benefit of the SEE-PER family and the wider HE community.

11. Reflections from senior leadership

Professor S. Mark Spearing, Vice President, Research and Enterprise

From your perspective, how has this SEE-PER funded work impacted your institution?

The SEE-PER project has complemented the important work already being implemented by PERu and is a positive start to embedding PER at the earliest point of our academics' careers. The training programme developed as part of the project continues to be delivered and a broader range of staff are being trained to run it themselves, demonstrating the sustainability of the activity.

Have any of the project team's initiatives or ways of working stood out to you, and if so what difference or contribution do you feel they have made?

We can see from the staff and academic input to the surveys and focus groups delivered at the beginning of the project that there are a range of feelings about PER across the institution. Many of those who want to participate did not have the time, knowledge or experience and this project has helped to address these barriers. The team's innovative ways of working and delivering engaging training content have resulted in extremely positive evaluation and I am delighted to hear that participants in the training have gone on to deliver successful PER activities in both internal and external PER contexts. The SEE-PER project has made a positive impact on the future of PER at Southampton in terms of awareness, opinions, confidence and knowledge, supporting effective PER delivery and broader participation.

What are your thoughts about the future for Public Engagement with Research at your institution, and its resourcing?

It is clear that the need for effective Public Engagement with Research has never been greater. We are actively looking for ways to increase the level of resource that we allocate to this important activity, including being able to secure resource to continue the SEE-PER project manager role. We know that to deliver our long term strategic ambitions for public engagement as a route to research impact we need staff in long-term employment. PERu has recently been incorporated within the established and permanent Research and Innovation Services team to provide increased stability and better strategic alignment with our other enterprise and impact activities. We continue to operate in a very financially constrained environment which results in intense pressure on all activities, particularly anything that is not clearly at the heart of our education and research mission. The challenge at this University and across the sector is to achieve a clearer understanding that PER is an essential, rather than a "nice-to-have" and to ensure that funding is routinely applied for to deliver this from our external funders.

12. Talking points

12.1 Culture Change

This SEE-PER funding has enabled the University of Southampton to identify the barriers to engagement with PER training at our organisation. We have been able to transform the way PER training is delivered at the grass roots level of researchers' careers to improve confidence, awareness and skills, and crucially to spark the development of novel PER activity. The findings of the project necessitated robust and thorough evaluation, which has granted us insights we would not otherwise have had. Continual reflection on the response of trainees and the feedback they provided has helped us to develop what our participants have described as a training programme of superlatively high quality. Our work has also addressed the strategic location of PER training, which now sits between our Centre for Higher Education Practice and PERu, and importantly the timely placement of training provision in relation to a PER life cycle which encompasses opportunities to put learning in practice at existing high profile University of Southampton PER events, including our Science and Engineering Festival, the Bringing Research to Life Roadshow and the relatively new Hands on Humanities Day.

The outcomes include a suite of training resources to support an in-depth training programme covering the whole life cycle of PER planning, design, implementation and evaluation. Furthermore, a plan is in place for this training to continue to be delivered and enhanced beyond the duration of the funding period, notably involving a range of colleagues from within different faculties at Southampton, demonstrating that our plans for sustainability have been successful. Among the impacts is the enhanced delivery of PER mediated by participants in the SEE-PER training programme, who have designed and implemented their own PER activities, and who in many cases have then raised the profile of PER through dissemination work within their departments and faculties. Although the collection of evidence of culture change is by necessity a long-term endeavour, our project has shown that participation in PER training can lead to significant changes in the perceptions of individuals around PER that, if replicated across and institution, would represent a significant change in culture that would transform attitudes towards PER in a positive manner.

12.2 Challenges

We faced several challenges during this project. Although some of these were anticipated, addressing them took up valuable time and challenged the ability of the project team to deliver on the more challenging aims of the project.

Given the dependence of our project on partnerships with academic and research staff with busy and unpredictable schedules, the challenge of coordinating meetings and other interactions was significant, and was exacerbated by national strike action in 2018 and the disruption caused by a later reorganization of the University's faculty structure. The strike particularly affected the recruitment of academic colleagues to participate in focus groups for initial data collection, and the crowded nature of academic schedules meant that getting participants to promptly respond to surveys was a similar challenge. Although this was frustrating, we overcame the problem by being more proactive in reaching out to key partners with whom we wanted to engage. By going to them rather than expecting them to come from us, we were able to obtain valuable input that shaped later stages of the project. The faculty restructure, which was part of our VC's 10-year plan, had a number of other impacts and particularly curtailed our efforts to secure partners within faculties to deliver our training programme through a partnership model. However, as noted elsewhere, we were mindful of these changes, particularly when dealing with embedding and sustainability, and we are in a position where our training programme will continue to be delivered on a partnership basis beyond the SEE-PER project, demonstrating that we have overcome this challenge.

Collecting robust evaluation data for the project was another significant challenge. Rather than relying on post-training surveys and focus groups, which are notorious for poor engagement, we developed a reflective journal that participants would complete as they progressed through the timeline of the training programme. As well as helping participants to consolidate their learning after each episode, this also allowed us to collect rich data in real time that provided us with unique and valuable insights regarding the evolving thought processes of our participants. While completion of the reflective journal by training participants was variable, we were able to collect a more substantial body of data than has been possible with post-intervention data collection after completion of similar projects in the past. Analysis of this body of data helped us to identify the outcomes of the training programme for our participants, and also supported our own ongoing process of reflection and refinement to enhance the training programme throughout the duration of the project.

In our original formulation of what was a one year project, it was a challenge to consider how outcomes really could become embedded in practice across the University. However, the provision of an additional year's funding has enabled us to progress further with the embedding element of our work, notably through the interaction with our new Centre for Higher Education Practice, which has responsibility for ensuring the continuing delivery of training and development activity across the University over the foreseeable future. The second year of funding was crucial in ensuring that PER training came to be seen as 'core business' within CHEP.

Maintaining commitment at the highest levels of the University has been an ongoing challenge for the project team, particularly with our previous VC leaving mid-project. A new VC joined the University in October 2019, and gaining his support for the future of SEE-PER and PERu will be a priority in the immediate future.

3 .3 Success

One of our main successes has been the process of connecting researchers and staff from across the University with the new Centre for Higher Education Practice (CHEP) and Public Engagement with Research unit (PERu) through this project. The combined expertise of CHEP and PERu in the areas of training design and delivery has enabled the creation of a highly regarded training programme that has engaged researchers from across all faculties at the University in both the design and implementation phases. This breadth of reach was achieved via an open and inclusive communications and marketing campaign to share information about the project at a wide range of meetings, workshops, newsletters, on social media and at informal networking opportunities for example the Public Engagement Network. The purpose of this was to encourage and motivate researchers and academic staff to participate in our fact-finding activity, to support the design of our training episodes and to participate in pilot programmes.

We successfully enrolled and trained 3 cohorts of researchers to engage in our training programme, who then assisted in the enhancement of our provision through their feedback and their generosity in sharing their outputs as case studies for use in future iterations of the training. We motivated participation by clearly signposting the benefits to individuals and providing the opportunity to bid for funding to support future PER activities. The reflective journals completed by our participants throughout the programme were actually a two-way communication tool that provided us with the opportunity to provide feedback at key points in the training. The confidence and skills developed in participants as a result of participation in the programme culminated in the delivery of 13 PER activities at various UoS events including the Science and Engineering Festival, The New Forest Show and Hands-on Humanities Day, reaching thousands of participating members of the public.

The role of the project manager was critical in ensuring that high quality training resources were created, with the commitment of other members of the project team being vital in ensuring excellence in terms of the delivery of the training. This was a real team effort, which broke down barriers between different 'silos' in the institution and laid the foundations for ongoing and fruitful partnerships to develop further innovative training opportunities; the learning from this experience will certainly influence the design, delivery and evaluation of other training activities within CHEP for years to come.

We have created an enjoyable and mutually beneficial partnership with SEE-PER colleagues at the University of Lincoln, achieved as a result of the collaborative nature of project meetings facilitated by NCCPE. Through this partnership we have been able to share best practice, provide support and advice about current PER challenges and build more flexibility into our package of resources to extend their applicability to other institutional contexts. This has resulted in the more sustainable provision of a blended-learning training programme, comprising online and face-to-face components, including videos, templates, interactive activities, facilitator guides and participant packs. By evaluating pilots at both institutions and jointly reviewing the resulting feedback and evidence during meetings in London, we were able to create additional activities to allow colleagues to adapt the training to meet their own specific requirements by taking a 'pick and mix' approach to resource selection. The training programme has already been adopted by colleagues at other institutions involved in the SEE-PER programme, and we look forward to working with NCCPE to make our resources as widely available as possible.