

Coproducing an Academic Career Development Programme to Train Future Leaders in Environment: Health research with a focus on research culture and equality, diversity and inclusion

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Funding: See Acknowledgements.

Editorial review: This article has been subject to an editorial review process.



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Abstract

With the emergence of new capabilities such as artificial intelligence, alongside remote working and the cost-of-living crisis, the needs of early career researcher (ECR) training are fast evolving. PhD students and ECRs increasingly face mental health challenges, driven by isolation and career uncertainty. This paper offers a critical reflection on the creation of a joint academic career development programme (JACDP) between multiple partners, which offers additional, tailored opportunities to support young researchers in universities and governmental public health institutions.

Our experience suggests that the success of a multi-institutional programme requires a deliberate collaborative and co-productive approach at all levels. In addition to sharing the different expertise in each institution to build a varied training programme, involving young researchers in planning and delivering the training and social activities, tends to increase relevance and peer participation, and to help them develop leadership and time management skills. It is important to continually review the activities, engagement and future events provided,

to embed clearer evaluation within the programme, and to reflect on the accessibility of the training provided.

Our programme contributes to a positive research culture by providing relevant tailored and diverse academic and research training to develop future public health leaders while aiming to maximize inclusivity and recognising the value that PhD students and ECRs can bring to multi-partner research collaborations.

Keywords: training; partnership; multidisciplinary; involvement; impact

Introduction

This paper offers a critical reflection on the creation of a joint academic career development programme (JACDP) between multiple partners, including university institutions and the UK Health Security Agency (UKHSA), a UK government organisation. This programme was driven by infrastructure funding from the Medical Research Council (MRC) for the MRC Centre for Environment & Health (MRC-CEH) at Imperial College London (ICL) and the MRC Toxicology Unit at the University of Cambridge, and from the National Institute for Health and Care Research (NIHR) Health Protection Research Units (HPRUs) in Environmental Exposures & Health (**EEH, 2020**) and in Chemical & Radiation Threats & Hazards (**CRTH, 2020**) at ICL. HPRUs support UKHSA in its objective to protect the health of the public by delivering high-quality collaborative research. An essential aim of these infrastructures is to train the next generation of leaders in the fields of public health, data analytics, epidemiology and toxicology, which requires a wide set of technical and transferable skills. Developing a positive research culture committed to equality, diversity and inclusion (EDI) are priorities for all parties involved. Our cohort includes more than 150 PhD students and early career researchers (ECRs) based in multiple locations, for example ICL and Kings' College London in London, UKHSA in Chilton, and the MRC Toxicology Unit in Cambridge.

The primary aim of this programme is to provide specific training to PhD students and ECRs, complementing existing courses and opportunities provided by their host institutions, with the goal of nurturing future leaders in environment-health research. To achieve this, we deliver a broad range of multidisciplinary activities, including regular seminars and journal clubs; technical workshops (e.g., on systematic reviews, statistics, or machine learning); peer-to-peer support initiatives; and opportunities for participants to present their work through posters or oral presentations at local, national, and international events and conferences.

Figure 1 shows the key components of the programme across the NIHR HPRUs and the MRC-CEH, and the frequency at which these components occur.

Figure 1: Key Components of the Joint Academic Career Development (JACD) Programme, and the frequency of occurrence.

Start	Induction/buddy scheme
Weekly	Career development portal
Bi-weekly	Journal club (EBS/NHLI + ERG)
Monthly	Core modules / Distinguished lecture series
1-2/year	Technical workshops
Annual	Training days (JACDP, UKHSA, NIHR Academy)
Ad hoc	Shadowing, placement, career support

We have set up a Training Committee with representatives of all institutions involved to plan, organise and deliver these activities. We believe that it is essential to involve students and ECRs in the decisions taken. As a result, many activities are led or co-led by junior researchers. They are therefore represented on the Training Committee and coordinate the Researchers' Society, which aims to promote the welfare and strengthen cohort building across the MRC-CEH and our NIHR HPRUs.

Delivering training opportunities in a multi-institutional context in multi-geographical locations has always been a challenge. The emergence of online meetings after the COVID-19 pandemic offered new networking opportunities, enabling easier and more equal access to all members of our cohort. Nevertheless, online events tend to lack spontaneity and natural networking interactions which forms part of academic career development. At the same time, the substantial rise in the cost of living has pushed many students to take on work alongside their studies, while a well-documented increase in mental health issues (partly linked to the isolation of remote working) has also emerged (**National Union of Students, 2023; Hazell et al., 2021**). We have seen a renewed demand from students and ECRs for more in-person interactions, as demonstrated in our observations below. These opposite trends present significant challenges in terms of EDI when planning training activities.

Below, we share our experience and reflections on the challenge to apply our underpinning principle to foster a positive research culture among PhD students and ECRs through a JACDP while meeting the needs of a diverse cohort.

Our Observations

Although completing a PhD or progressing through a postgraduate career have always involved challenges, the emergence of new technologies such as artificial intelligence, alongside frequent remote working and the cost-of-living crisis, means that the experiences of students and ECRs and their expectations are fast-evolving. The planning and delivery of inclusive ACD activities needs to account for these changes.

As in other sectors, PhD students and ECRs are increasingly expecting value-for-money for their time, and they can be very selective about what activities outside of their core research they deem relevant to their training and career progression. Many of the best ideas in research come from exposure to a wide range of ideas, projects and topics, and focusing too much on a single research project can stifle the long-term creativity of researchers. For example, in the Researcher Development Framework (RDF) from Vitae, policy makers suggest that ECRs should be exposed to a variety of opportunities to broaden their skills and experiences (**Vitae, 2011**). A few students and ECRs tend to be really engaged in the decisions to plan and deliver training activities, which offer great opportunities to develop valuable leadership skills.

The mental health crisis, which seems to affect an increasing number of students and ECRs (**Cilli et al., 2023, Naumann et al., 2022, Evans et al., 2018**) requires host institutions to have adequate support services for their staff and students. This often leads to delay in research projects which can lead to request for extensions and running out of funding.

A growing number of students, particularly in London, are experiencing increased pressure and constraints on time due to the cost-of-living crisis (**ONS, 2023**). Expensive (and potentially poor quality) housing with long commute times can add extra stress. Furthermore, students are increasingly working second jobs to make ends meet. This can have an additive effect; if a student recognises a decline in their mental health, they may delay necessary changes to lifestyle which could worsen their mental health crisis longer term.

It is essential to maximise the career development of junior academic researchers, so that they can develop in a positive and stimulating research culture. While harassment, bullying and discrimination have clearly no place in any institution, a supportive and positive environment is also required to encourage career development. This can be achieved by

promoting a collaborative culture of integrity, good governance and best practice.

There are institutional initiatives to provide support for students and staff with specific learning difficulties or disabilities, including dyslexia and attention deficit hyperactivity disorder (ADHD), and there is more awareness about other invisible disabilities, such as colour blindness. Although each student or ECR will likely have specific needs or requirements, there is still a lot of progress required to make all the teaching and training activities more inclusive, including in tailored programmes such as the JACDP.

EDI is complex and multifaceted (**Dewidar et al., 2022, Swartz et al., 2019, AlShebli et al., 2018, Powell, 2018**), and needs to be championed throughout all processes from recruitment to supervision or line management of students and ECRs. Evidence suggests that staff are more productive in diverse environments in terms of gender, ethnicity, socio-economic status, sexuality and religion (**International Labour Organization, 2022**). Identifying measures to monitor changes in relation to these characteristics as part of a training programme can be challenging. Nevertheless, host institutions tend to have research culture and EDI policies and all the institutions involved in our JACDP are fully committed to these values.

Our Experience and Findings

To meet the evolving expectations of students and ECRs, we believe that it is essential to involve them in the planning and delivery of training and social activities. Such involvement helps to maximise the relevance of the activities organized to their needs, to increase participation from their peers, and to leadership and time management skills. Our student and ECR representatives are integral to our JACDP Committee, alongside the HPRU Directors from Imperial and UKHSA. This mirrors the growing involvement of members of the public and patients in the co-production of research projects to build on their lived experiences. Regular direct interactions provide opportunities to receive formal and informal input and feedback from students and ECRs, and to reflect and improve on training activities delivered and on the overall strategy of the programme.

Peer-to-peer interactions are an important component of such a programme. We offer each new PhD student to be paired with a more senior member of our cohort, through our 'buddy' scheme. The buddy is usually another PhD student in their second or third year, ideally working in a similar area, who can provide support in navigating their PhD and the JACDP in the first few months. The buddy is there if the student needs pointing in the right direction, whether in relation to administrative

queries (e.g., assessment milestones) or getting started in their research project. We also encourage ECRs to organise and deliver some of our technical workshops as an opportunity to share their know-how with their peers. These workshops usually have two components: a theoretical one to explain concepts and methods, and a practical one to put the theory into practice under the guidance of the ECR. One of the ECRs who delivered a workshop on time-series analysis found that:

...organising a technical workshop was a fantastic opportunity to engage in teaching activities, encourage colleagues to apply the methods that I use across different disciplines and also invite external experts to present their research. (ECR Participant, 2025)

Aside from organising social activities, the members of the Researchers' Society (RS) can also take charge of their own initiatives. With support from the JACDP, they developed a particular focus on sustainability, which led to the creation of working groups, an internal report for the MRC-CEH, a publication in *The Lancet Planetary Health* (Roca-Barcelo et al., 2021), and to community-based film screenings to raise awareness about this important topic. Because the students and ECRs lead the RS, they can plan a programme according to their needs and desires. We feel that it has been a privilege to be invited to most of their events. In addition, to see the students grow in their confidence and character because of their involvement in both the RS and the JACDP, gives us a huge sense of pride.

We have supported our ECR cohort to engage with local communities in public community involvement engagement and participation (PCIEP), including multi-ethnic and diverse socio-economic backgrounds, to better understand the challenging realities faced by communities through research projects, large events and placements. Placements, for example in local authorities or at UKHSA, have provided valuable opportunities to some of our students to work on rapid research translation and public health policies, but adequate funding support is necessary.

The highlight of our programme is an in-person annual training day, where students present their research findings through either posters (Year 1) or oral presentations (Years 2 &3). We usually have more than one hundred participants and take this opportunity to have dedicated sessions on specific topics including EDI, mental health and sustainability. These sessions are organised as conversations or debates to make them more interactive and serve as prompt for further discussions. In our post-event survey, the quality of our 2024 annual training day was described as excellent by 79% of respondents, with the quality of the presentations being particularly praised.

Students and ECRs often can feel overwhelmed by the wide range of activities on offer. For example, the NIHR Academy organises a wide range of events for their members, including a residential Doctoral Training Camp; the MRC has a supplement scheme which support eligible students to get extra funding for placements, high-cost training or overseas fieldwork; the MRC Toxicology Unit organises the Integrative Toxicology Training Partnership Summer School to build capacity in toxicology and related disciplines. These are only some of the many opportunities offered to our cohort that supplement the day-to-day activities provided by their research group, department and institutions. To help them, we have put together a handbook with all the essential information and guidance that students and ECRs need. Signposting them to the right person to answer their queries is often a key first step to progress. Newsletters can be useful to share opportunities related to training, career development, networking or funding, but these need to be easy to easy-to-read and ideally targeted to specific sub-groups.

To promote EDI, we work with local entities, such as the Equality, Diversity and Inclusion Centre (EDIC) at ICL to ensure that we are aligned with institutional policies. We organise a mixed set of events with online only events (e.g., International Distinguished Lecture Series where we invite world-leaders in the field to give us a virtual lecture followed by a Q&A), hybrid events (e.g., seminars and journal clubs) and in-person only events (e.g., annual training day). Online events enable involvement of more participants across the different partner geographical locations but can lack spontaneity. By offering a variety of formats and providing a diverse range of activities, we aim to ensure that activities are inclusive and accessible to all, while also enabling in-person opportunities for networking and socialising, fostering a more diverse and connected community.

By coproducing many of our training activities with students and ECRs and offering them many opportunities to share their views and clarify their needs, we believe that this contributes both to a positive research culture and to a more inclusive, diverse and equal research environment.

Recommendations

The Concordat to Support the Career Development of Researchers (**Vitae, 2019**) provides a valuable starting point to identify best working practices and responsibilities to create a positive research culture.

In a multi-institutional context, it is often challenging to deliver training activities which offer networking and social opportunities, while maximising accessibility and inclusivity. In addition to the working from home culture established during the pandemic, students and ECRs are

spread across many campuses and institutions adding to the possible feeling of isolation. As a result, we recommend mixing in-person and online events which fosters inclusivity. In both in-person and remote events, best practices in terms of accessibility of the content of training and social activities, should be systematically considered (**Doran et al., 2024**). Guidance on this has been written by the British Academy of Management (**Sliwa et al., 2021**).

Our informal observations have been that PhD students and ECRs tend to be extremely dynamic and motivated key players, particularly for PCIEP activities, where accessibility and EDI should also be reflected. Looking after the wellbeing of our cohort is integral to the training programme. Providing pastoral care for students and ECRs and ensuring that they are aware of support routes before they need them is important. It can be challenging to promote open conversations about mental health or financial difficulties, but a positive research culture largely facilitates these kinds of interactions. Our experience is that initiating these conversations encourages researchers to seek help and guidance.

Students and ECRs who have engaged in the programme have suggested, through informal conversations and interactions, that it is motivating to see some of their work rapidly translated into policies or implemented in practice. This can be achieved through contributing to the work of a national or international commission (e.g., the International Commission on Radiological Protection) or through placements in UKHSA or local authorities. The NIHR, for example, offers short placement awards for research collaboration (SPARC) and local authority short placement awards for research collaboration (LA SPARC) open to NIHR Academy members. Shadowing senior colleagues or attending meetings of expert committees (e.g., the Committee on the Medical Effects of Air Pollutants (COMEAP) or Committee on Medical Aspects of Radiation in the Environment (COMARE) can give students and ECRs real-world insights into challenges faced by advisors and policy makers. As for most training activities, our experiences have shown that clear signposting is essential for junior researchers to be aware of these opportunities.

Beyond the engagement of student and ECR representatives, it is important to undertake surveys and/or opinion polls to find out the wider opinions of the cohort and to identify potential issues. Again, this should be done through a mixture of in-person sessions, which tend to be more open, and online questionnaires, which are more inclusive and anonymous. Although we frequently use anonymous feedback forms after our training events (e.g., Qualtrics forms and Mentimeter polls), we are yet to set up recurring annual surveys, with consistent questions, which

would enable a rigorous evaluation of the programme, research culture and EDI over time.

Managing to be part of an external accreditation scheme, such as the CPD Certification Service (**CPDUK**) can make it more rewarding for students and ECRs to attend academic career development opportunities. Similarly, researchers and staff delivering post-graduate training activities should be encouraged to consolidate their personal development and evidence of their professional practice in higher education (e.g., Fellowship of Advance Higher Education) (**AdvanceHE, 2025**) .

Finally, it is important to avoid duplication as much as possible with other initiatives. Although some training activities will always remain specific, there tends to be a lot of overlap between the skills offered by similar programmes. Most of the NIHR HPRUs require basic training in systematic reviews, statistics and translation to impact policies with a public health focus. Collaborations with other initiatives in one's institution and beyond should therefore be strongly encouraged.

Conclusion

The success of a multi-institutional programme is primarily due to a deliberate collaborative and co-productive approach. It also benefits greatly from the different pools of expertise in each institution to build a varied programme of training for PhD students and ECRs. We are continually reviewing our activities, engagement and future events based on feedback received, reflexive discussions and innovative ideas, evolving best practices, and successful experiences of others, and are now seeking to embed more systematic evaluation within the programme. We are also keen to interact with others and share best practice across various research and research culture communities and to further improve. Our programme contributes to a positive research culture by providing relevant tailored and diverse academic and research training to develop future public health leaders while aiming to maximise inclusivity and by recognising the value that PhD students and ECRs can bring to multi-partner research collaborations.

Acknowledgements

This work is part funded by the Medical Research Council (MRC) Centre for Environment and Health and the National Institute for Health and Care Research (NIHR) Health Protection Research Units in Chemical and Radiation Threats and Hazards, and in Environmental Exposures and Health, which are partnerships between the UK Health Security Agency and Imperial College London. The views expressed are those of the

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To cite this article:

Broom, K.A., Evangelopoulos, D., Wright, S., Ioakeimidou, A., Parsons, R., Rapp-Wright, H., Tweedie, R., Lewis, A., Horngold, K., Wright, M.D., Ainsbury, L., & Piel, F.B. 2025. Leaders in Environment: Health research with a focus on research culture and equality, diversity and inclusion. *Exchanges: The Interdisciplinary Research Journal*, 12(3), 133-148. Available at: <https://doi.org/10.31273/eirj.v12i3.1833>.