



1 Background

Recent UK Governments have seen innovation, underpinned by a strong UK research ecosystem and a highly skilled R&D workforce, as a key driver of economic growth and societal improvement. At the time of writing, this looks to continue in the context of an emerging Industrial Strategy. The previous Government's priorities were set out in a 'Research and Development Roadmap' with a 'R&D People and Culture Strategy' in 2021, describing a vision for the development of the UK's R&D talent base. This included aims for UK R&D to become an inclusive, dynamic, productive and sustainable ecosystem. UKRI itself committed to developing, attracting and retaining talented people as one of its priorities. Its 2022 Collective Talent Programme includes studentships, fellowships and other programmes that aim to connect sectors and disciplines better and enable researchers to have diverse and flexible career paths.

Doctoral education is a critical component in these talent ambitions and UKRI, as the largest funder of doctoral education, has an important leadership role in providing high-quality research degree training that often sets a standard to which other doctoral provision aspires. Along with the commitments above, UKRI indicated it would work with the Government and the higher education (HE) sector to give doctoral students better support through a 'New Deal for Postgraduate Research' which aims to challenge and transform the approach to doctoral training, to make it more sustainable, open and attractive to a wider range of candidates. Another key policy aim has been to support greater movement of people and ideas across the research and innovation system, while meeting the future needs of employers in all relevant sectors. This paper, commissioned by UKRI, is an independent contribution to thinking about doctoral training, specifically focusing on career learning (see section 3 for more on the rationale for this).

2 Some historical context

The need to encourage and facilitate the transition of doctoral graduates into careers 'beyond academia' has long been recognised. The first GRADschools in 1968 (developed and delivered by CRAC, funded by the (then) Science Research Council) were designed to encourage more doctoral researchers to consider a career in and enter industry, in response to the Swann report.¹ The programme used activities drawn from different occupations and employment sectors to expose doctoral researchers to a wide range of employment opportunities beyond academia. At this time, HE institutions were providing few professional development opportunities for doctoral researchers, and there were few structured doctoral programmes. In 1995 only 33 UK universities had a Graduate School,² development of which helped to expand the range of training provided in doctoral degrees, which were still predominantly the 'apprenticeship' model. Then, the Science Research Council's Cooperative Awards in Science & Technology (CASE) were one of the few programmes that provided doctoral researchers with the opportunity to interact with organisations beyond academia, through a collaborative research project.

Sir Gareth Roberts' '*SET for success*' Review in 2001 put this lack of professional development provision within institutions into sharp focus, stating that doctoral researchers

¹ *The Flow into Employment of Scientists, Engineers and Technologists*, Swann Working Group on Manpower for Scientific Growth of the Committee on Manpower Resources for Science and Technology, 1969

² UK Council for Graduate Education data

were not being well prepared for careers beyond academia (or, actually, careers within academia for that matter). The subsequent funding of £120m for universities in 2003-2011, together with funding the UK GRAD Programme (successor of the GRADschools, now Vitae), kick-started the creation of personal and professional development programmes for doctoral researchers and more structured doctoral programmes. The footprint for this funding was extended to early-career research staff and significant researcher development programmes were developed and delivered across the HE sector, the majority of which were sustained after the central funding ended.

This funding was also used by some institutions to employ careers advisers³ specialising in supporting doctoral researchers, mainly institutions with large numbers of such researchers. In an AGCAS survey in 2020, the large majority of responding institutions (85%) did provide careers support for researchers in their careers service, although only around a third had professionals in their service whose sole responsibility was supporting researchers.⁴

Meanwhile, the Research Councils were developing various models of structured doctoral training programmes, including Doctoral Training Partnerships (DTP), Centres for Doctoral Training and Collaborative Doctoral Partnerships, with a strong emphasis on the cohort experience and providing professional development opportunities. The importance of professional and career development was embedded within the 2004 QAA 'Code of Practice for Postgraduate Research programmes'. A precept was the requirement to provide doctoral researchers with appropriate opportunities for personal and professional development '*to become effective researchers, to enhance their employability and assist their career progress after completion of their degree*'. This highlighted the importance of flexibility to address individual needs and personalised training plans, and expectation that supervisory teams should support opportunities for doctoral researchers to reflect on their learning.

UKRI's 2016 'Statement of Expectations for Postgraduate Training' outlined expectations for HE institutions to provide an excellent research training environment, as well as on doctoral students themselves, collaborators and partner organisations. While not being prescriptive, it expected institutions to provide a comprehensive, needs-based researcher development programme that enables students to successfully complete a high-quality doctoral research project, develop their competences to be an independent researcher and prepare them to have a wider impact beyond academia. The newly published revision of this statement⁵ is somewhat more explicit, based on the three areas of support and student experience, research skills and methods, and professional and career development. We see this as a positive step both in framing doctoral training more broadly but also in raising the profile of professional and career development activities in particular.

The Vitae Researcher Development Framework (RDF) was developed with the sector in 2010 and articulates a broader understanding of researchers' competencies, describing the knowledge, skills and attributes of successful researchers. Many institutions have reviewed their doctoral training programmes and mapped their researcher development provision against the RDF. It contains 'career management' (B3) as a discrete element, highlighting the importance of researchers taking ownership of their professional/career development and understanding the range of employment opportunities within and beyond academia.

³ Known in some institutions as careers consultants

⁴ *Supporting research staff and students*, AGCAS 2020 (by Kate Murray et al.)

⁵ Statement of Expectations of Doctoral Training, UKRI 2024

3 The issue and rationale for this ‘thinkpiece’

Broadly, this has been a positive story of increasing attention to the professional and personal development of doctoral researchers in the UK. However, a quarter of all the responses to a recent call for input held by UKRI on the New Deal for Postgraduate Research related to perceptions that the quality of careers information, advice and guidance to doctoral researchers was insufficient and/or too heavily focused on academic careers. Around the same proportion – mostly from current doctoral researchers – felt that there should be greater focus on development of a wider portfolio of skills beyond those needed for their research, including skills that would increase their employability in different sectors. This should be seen in the context that enabling researchers to recognise the skills they have, and to articulate them, is a key part of careers support.

In its response to the consultation findings, UKRI has committed to review the current provision of what it terms ‘careers advice’ to doctoral researchers and identify how career-related learning and related skill development during doctoral study in the UK could be enhanced. As part of this, CRAC was commissioned to provide this ‘thinkpiece,’ specifically focusing on how career-related learning could be enhanced and better embedded within doctoral programmes.

We developed a first draft on the basis of knowledge within CRAC/Vitae combined with six interviews with sector professionals to explore current practice and potential areas for enhancement. Those included senior career professionals, researcher development leads and academics specialising in career learning. The draft was then subject to review and comment by a further six experts, including two senior academics overseeing doctoral provision. We are grateful to all those individuals for their inputs and assistance.

This piece assumes that UKRI seeks both to enhance career learning amongst the doctoral researchers it funds but also amongst other doctoral researchers whom it does not – through its wider leadership and convening role. Accordingly, we have kept the scope of our thinking wide. This is important when recognising that currently doctoral researchers who are fully funded by the Research Councils (such as those on DTP programmes) tend to have access to far more developmental opportunities, and the means to access them, than some of those funded by other bodies and especially than those who self-fund. Although the UKRI brief for this piece used the term ‘career learning’ (at our recommendation), we are defining this in a broad way. The language of CEIAG: Careers Education, Information, Advice, and Guidance, is how careers support is usually referenced in policy for schools, colleges and universities, and it may be wise in future to adopt this in the doctoral context too.

4 Current position and provision

A diversity of needs

Doctoral researchers are diverse and complex, with a wide range of experiences. For example, at one end of a spectrum, a new entrant straight from a first degree with limited work experience may have very low levels of vocational maturity⁶ and may describe themselves as not being ready to ‘start thinking about their career yet’ – they are focused on gaining competency related to their research. For this type of doctoral researcher, access to work experience opportunities, encountering employers and some personalised guidance

⁶ Vocational maturity is defined as the ability to make appropriate and informed occupational choices

within a structured careers education framework or programme could help them develop this maturity and the competencies to plan and manage their career. Understanding that career paths are now more complex, rather than linear, and that this is likely to increase, is a part of such career learning, together with developing the skills needed to manage such a trajectory.

At the other end of this spectrum could be an individual already on a professional track – doing their PhD part-time whilst working or through a professional doctorate. They may be far more vocationally mature so might not need all the aspects of career learning that the youngest doctoral researchers might. However, being able to access impartial and objective careers information, and potentially 1:1 advice or guidance at key points in their journey could still be highly appropriate. Such guidance could also be particularly apposite for a mature graduate who has returned to doctoral study with a view to a change in career direction.

There is also diversity amongst doctoral researchers of other forms too. Doctoral researchers with different personal characteristics and from different backgrounds will have differing needs for support, and have developed different extents of social and career capital by the time they start a doctoral programme. Discipline of research may intersect with all of these aspects of diversity too, and this has impact on the range of potential career opportunities as well as the nature of the doctoral programme.

In contrast to first-degree career provision, where there is greater consistency of provision and access to CEIAG across cohorts of students who are on specific degree programmes, the diversity of and lack of structure for many doctoral programmes (and lack of such clear cohorts) means it is more challenging to know how to deliver CEIAG consistently.

Researcher development

Today all universities with doctoral programmes have researcher development provision open, to some extent, to all their doctoral researchers. The extent of provision depends on the size and diversity of their doctoral population and resourcing. Research-intensive institutions in particular have significant levels of provision delivered either through a centralised researcher development function or devolved to faculty-level provision. Research Council funded doctoral programmes sit within this landscape of institutional provision, providing a tailored programme of (additional, often exclusive) professional development opportunities, which may or may not link to generic institutional provision or be delivered by those professional staff. To varying extents, programmes of this type do promote the importance of considering a broad range of career options. The wide variety of ‘places’ from which career-related and researcher development support can come within an institution may also make it confusing for doctoral researchers to find relevant careers support, if they know they need it.

In practice, what individual doctoral researchers have access to in terms of their professional development will depend on their source of funding (if any) and their awareness of what is available to them. Some very good developmental initiatives exist, but these are not consistently available across the sector so there is unequal access. Even doctoral candidates within the same institution may have quite different experiences (although this is not to suggest that there should be a single ‘solution’ for all, because all will have somewhat different needs). In a large institution, there can be several training grants (including DTPs and/or CDTs) but these tend to operate individually, rather than pooling their resources to develop a more unified offer. There are also some broad disciplinary differences; partly

connected with the nature of funding. In general, more of those on doctoral programmes in the sciences will have access to more skill development support than amongst those in the arts and humanities, because funding of structured programmes has been more widespread in the sciences.

Just as important considerations are the extent to which doctoral researchers are receptive to, and choose to access, the researcher development opportunities that are open to them. Additionally, are they able to optimise the impact of such activities in relation to potential career learning by, for example, taking time for reflection and reinforcement of that learning? These activities (let alone reflection upon them) are still seen by some doctoral researchers and, more critically, still seen by some supervisors as distractions from their research. Not having a standard doctoral training curriculum into which aspects of CEIAG, or researcher development activity, could be embedded, and thereby become an integral part of doctoral degree provision, means that these are inherently more likely to be perceived as add-ons or additional requirements.

Professional and other careers inputs

In terms of CEIAG more specifically, many institutions have dedicated careers advisors/consultants for doctoral (and/or postdoctoral) researchers. While institutions' careers services do regularly get positive feedback from individual doctoral researchers for the support they have provided, we know from research with AHRC-funded DTP students⁷ that for some there remains a perception that their careers service is principally for undergraduates or only for those interested in employment beyond HE. Careers services also need to overcome assumptions by some students at all levels that they exist only for students who know what they want to do, or only for students who don't, or that they only connect students with graduate roles in large companies (as one doctoral researcher said: *"to make us all into management consultants"*). There could also be some cynicism amongst doctoral researchers about the value of career management in the context of the current academic precarity discourse, which could lead some to a 'why bother?' attitude to career management.

The relationship between a doctoral researcher and their supervisor is a key dynamic in providing CEIAG. While many supervisors do see the importance of integrating career learning into the experience of their students, it is widely recognised that they have a 'gatekeeping' effect – impacting the extent to which students can access relevant and timely career support or developmental opportunities. Doctoral researchers with ambitions to stay in academia are significantly more likely to turn to their academic supervisors/colleagues for (academic) careers advice, rather than a careers professional. However, it is obvious that many such academics will have limited knowledge of the labour market for doctoral graduates, especially the range of career opportunities available beyond academia, so will not be in a good position to give neutral or wider advice (and, of course, have all made a particular career choice themselves at some point).

"Many academics think they know it all and think they know what's best. And yet in reality they don't understand the data, or the fact that most leave [academia]. Because they look at their research group and go, well, you know, 8 out of 10 PhD students I had are still in research. But that's not true when you look at the big picture."

Head of Researcher Development, research-intensive HEI

⁷ Evaluation of AHRC DTP programmes, CRAC for AHRC, 2021 (unpublished)

Not all academics have the time or inclination to support the career learning of their doctoral researchers. In a recent evaluation, for example, one in five supervisors were not supportive of their student undertaking an internship, and at least one DTP Director did not see career learning as a part of doctoral training.⁸ Ensuring that doctoral researchers have more equitable access to CEIAG opportunities by reducing the effect of gatekeeping by supervisors could be a valuable theme in the context of current discussions about improving research culture.

However, for clarity, at this point we should be clear that we believe it unrealistic to suggest that all supervisors should be trained so as to upskill significantly in terms of their career knowledge, not least given the range of calls already upon their time. However, in a later section we will return to how they could more consistently facilitate career learning.

Careers information

A further challenge for any supervisors and for career professionals providing careers support for doctoral researchers is a lack of data on the long-term career paths of doctoral graduates. Vitae has provided the most comprehensive insights into early-career destinations of doctoral graduates.⁹ Our '*What do researchers do?*' publications have provided data on first destinations (six months after graduation) and at roughly four years after graduation, based largely on the HESA Destinations of Leavers from Higher Education surveys. Since HESA replaced these with its Graduate Outcomes survey in 2017, destinations data are only collected at a single point roughly 15 months after graduation. While the Longitudinal Education Outcomes dataset, which links tax records to data about the education of graduates,¹⁰ provides some insights into longer-term career outcomes, it lacks detail on key issues like occupations. There is no mechanism systematically to capture graduates' subsequent career steps in any detail, which means very little robust knowledge about career paths is available to doctoral researchers or those who advise them.

Within academia there is still an implicit, sometimes explicit, presumption that an academic career is the most highly valued option. It is not unusual to hear and read references to the 'leaky pipeline' and doctoral graduates being 'lost to science/STEM' where they find employment in another sector. Despite inputs by careers professionals who do not see it this way, many doctoral researchers and their supervisors perceive a bifurcation of career opportunities, which some present as a value-laden binary choice between inside or outside ('beyond') academia. This reduces the richness of information that ideally would be available to underpin decisions about career opportunities across a wide range of employment sectors, to a simple 'stay or go' decision.

As for anyone, it is not surprising that doctoral graduates may find comfort seeking employment in a known environment. Without direct experience of other environments, it is much harder for them to anticipate how they may thrive in another sector or occupation. That concept of having to 'step into the unknown' is compounded by supervisors who generally have little knowledge of potential career options. Ideally, careers information could include alumni providing testimony of making choices to enter different sectors and relating experiences in those environments, to support doctoral researchers and/or careers staff.

⁸ *Evaluation of Professional Internships for PhD Students programme*, CRAC for BBSRC, 2024

⁹ '*What do researchers do?*' (and previously '*What do PhDs do?*') publications, Vitae

¹⁰ LEO Graduate and Postgraduate Outcomes, Tax year 2020-21 – Explore education statistics – GOV.UK (explore-education-statistics.service.gov.uk)

5 What can be learned from undergraduate provision?

While it is clear that there have been achievements and advances in career support for doctoral researchers in the past 20 years, the frequent absence of cohorts and lack of a widespread 'doctoral curriculum' differentiates it from the improvements that have been made in careers provision for undergraduates. However, the latter can provide some inspiration for future enhancement of doctoral careers support as doctoral researchers are also registered students and some or many of the same principles should apply.

It is quite widely recognised that Mantz Yorke's 2006 report on employability¹¹ acted as a beacon in the early days of the undergraduate employability agenda (as we recognise it today) – a transformation that has been profound and lasting. We believe it would be instructive to examine this conceptual framing in more detail and the successes and mistakes made in changes to undergraduate processes and practice as a result, if we hope to have a similarly transformative and sustainable impact on the career learning of doctoral researchers. At the core of Yorke's work is the understanding that employability develops throughout the student's experience of higher education (through both curricular and extra-curricular activities). Michael Healy's recent paper on 'careers and employability learning' extends this idea of embedding further, suggesting that careers and employability should be regarded together and that such learning should be ubiquitous and continuous during higher education study (including extra-curricular experiences).¹²

Increasingly, there is recognition from funders and within HE that doctoral education should provide a comprehensive training for researchers. This is partly evidenced by the development of structured, cohort-based doctoral programmes with integrated professional development activities at the core of Research Council funded doctoral provision. Nonetheless, for some academics there remains some tension between the need for the doctoral researcher to undertake original research worthy of a PhD and developing their subsequent employability. Predominantly, the focus of doctoral programmes is on the end point of a PhD qualification, with significantly less, or no, attention on the transition to the next stage of the researcher's career. Commonly used metrics for doctoral education, such as submission and completion rates, reinforce this focus on outputs rather than outcomes. This contrasts with undergraduate degrees where having post-course outcomes as an institutional performance indicator for the regulator (Office for Students), and as key metrics for the Teaching Excellence Framework (TEF), has driven intense focus on developing student employability. This has resulted in much greater attention to work-related learning or opportunities and related skill development, and embedding these activities within undergraduate programmes. Increasing the focus on career learning and employability within doctoral programmes would, we believe, be the most effective enhancement to careers support for doctoral researchers.¹³ More attention to building wider employability through better extraction and articulation of the value of the skills they are developing, through some development of certain additional skills and more exposure to other sectors, would also respond to the Government's aim to create a highly skilled R&D workforce that can work across all sectors. We acknowledge that the new Statement of Expectations for Doctoral Training, with its discrete section on Professional and Career Development, is a

¹¹ *Employability in Higher Education: what it is – what it is not*, Higher Education Academy, 2006

¹² Healy, M. (2023). Careers and employability learning: pedagogical principles for higher education, *Studies in Higher Education*, 48:8, 1303-1314, DOI: 10.1080/03075079.2023.2196997

¹³ For example, Katina Rogers has written persuasively on the benefits of this for the humanities: *Putting the humanities PhD to work*, Duke University Press, 2020

welcome step in this direction, although it is unclear whether it will be sufficient as a lever to make any step change in enhancement of practice.

6 Shaping future CEIAG for doctoral researchers

In our interviews, it was the concept of ‘embedding’ – and what this could mean for doctoral researchers – that much discussion circled around, and which at times led to the topic of research culture being seen as a potential key influence.

“I think to some extent the Holy Grail is the concept of embedding. ...Enabling people to learn as they go along and to learn in the context of studies and the research that they're doing. I think that's necessarily complex and hard to work out exactly what that means because I think what you're ideally wanting to happen is ongoing, constant reflection: What am I learning through all these different things that I'm doing?”

Head of Researcher Development at research-intensive HEI

However, there may also be significant points in the doctoral journey where specific interventions could, or should, take place, which would build career learning. These would be most effective if there had been some underpinning with a career theory, such as planned happenstance¹⁴ although other specific theories could equally be useful in framing learning.

The following is a collection of elements of CEIAG activities, drawn from a range of student levels, together with some suggestions of new approaches or activities, which we believe have value in considering a potential idealised model for doctoral researcher career provision.

Careers education. The Universities of Glasgow, Edinburgh and Sheffield have co-designed and deliver an award-winning FutureLearn MOOC, ‘Career Management for Early Career Academic Researchers’.¹⁵ This could be used to provide some of the underpinning careers education, and possibly a light introduction to a useable career theory such as planned happenstance or the social justice approach to guidance.¹⁶ However, such a course needs to be carefully offered and timed so as not to increase the burden of introductory training and development for a student starting their doctoral programme.

Enhancing the role of the supervisor. In many cases the supervisor/s will be the individual/s that a doctoral researcher will turn to first, and trust. But can or should all supervisors provide (some) careers advice and/or advocate for consideration of options beyond academia? A minority will not or cannot, which begs questions of whether there should be a ‘minimum service level’ that could be expected of any supervisor. Could a realistic minimum be that they should encourage the student to be curious about options in a non-judgemental way, support their investigations and help them with access to expert careers advice or guidance? This could be embedded, or checked, within supervisors’ periodic reviews with their doctoral students. If that role requires an incentive, rather than being a requirement of good supervision, then some judgement (within their role as a researcher) of their effectiveness in training researchers – perhaps as one of the impacts of

¹⁴ Krumboltz (2009) originally, but see, for example, Yates, J. (2021). Career development theory: An integrated analysis. In P. J. Robertson, T. Hooley, & P. McCash (Eds.), *The Oxford handbook of career development* (pp. 131–142). Oxford University Press.

¹⁵ Early Career Academic Researchers, Online Course, FutureLearn

¹⁶ Hooley, T., et al. (2019). *Career guidance for social justice*, Routledge

their research work – could help to adjust the attitudes of those currently less engaged in supporting their doctoral students in the way we would hope.

‘Careers Registration’ is a recent but now widely adopted approach to generating and using data to improve understanding of the career development starting points and journeys of HE students.¹⁷ In practice, this means asking every student some basic questions about their career readiness and confidence during enrolment in each year of their programme. Some institutions have begun to include doctoral students within this process, but it is not yet widespread. However, as yet, very rarely do institutions use questions that are specific to doctoral-level students, which could be more valuable in understanding doctoral student needs. In principle, this sort of data-driven approach enables targeting of career support resources to students for whom and when they could have the most impact. However, a data-driven approach such as careers registration should only complement, and not replace, qualitative and participatory methods of incorporating the voice of the student into learning or programme design, and some effort may be needed within its implementation to ensure that in practice doctoral students engage with the questions.

Career guidance. At undergraduate level, some institutions’ courses make it compulsory for students to have an interaction with the careers service at particular points, typically offering them a 1:1 interview with a careers consultant. Some careers services (e.g. University of Leeds) are developing group guidance models. There could be merit in having mandatory 1:1 “touchpoints” with a careers consultant at key points along the doctoral journey, although this does beg questions of the extent to which university careers services could resource this. Taken at face value, the ratio of doctoral specialist careers staff in the UK to doctoral students, overall, is something like 1:3000, according to AGCAS data. This could mean 1:1 engagements are not currently feasible, in which case it is possible that engagement with an online module, instead, could be a staging post towards this goal. However, we welcome the fact that a systematic careers conversation with a professional is hinted at in the recent upgrade to UKRI’s expectations for doctoral training.

Some careers services have **peer coaching** programmes in which peer Career Coaches (University of Liverpool) or Peer Support Assistants (University of Leeds) support students. Whilst requiring an investment for the recruitment, training, ongoing development and employment of such students as coaches, these models could be extended to doctoral researchers. They would offer valuable work experience to doctoral researchers supporting their peers in this way, enhance engagement in thinking about careers and – longer term – contribute to research culture enhancement, as these schemes develop future leaders trained in coaching others from an early stage in their research careers.

Expanding, embedding and optimising experiential work-related learning. There are an increasing range and number of opportunities to participate in developmental activities that include exposure to other industries and the people who work in them (of which GRADschools were once one such opportunity). BBSRC has been in the vanguard of this in relation to placements in industry, with a mandatory 3-month internship integrated in its DTP programme which has a professional orientation (i.e. it must be unrelated to the student’s research).¹⁸ With a lower barrier to entry, the Employ.Ed on-campus internship programme

¹⁷ Gilworth, B. (2021) Careers Registration: Starting Points and Journeys. University of Huddersfield <https://blogs.hud.ac.uk/hudcres/20-21/feb/careers-registration/>

¹⁸ Professional Internships for PhD Students programme, BBSRC

at the University of Edinburgh is open to doctoral students and offers very local experiences of work.

A quite different example is at the University of Sheffield, where the careers consultants for researchers run a 3-day 'Researcher Challenge' – a live consultancy event with public, third and private sector employers. This gives doctoral students the opportunity to learn about consultancy, with different employers, in attempting to solve real world problems, similar to historic Crucible programmes for research staff. Students as Change Agents (another University of Edinburgh programme) is a similar approach, albeit more intensive.

Any other opportunities to increase knowledge of and exposure to other employment sectors and occupations, through career fairs, site visits and interactions with alumni, are potentially beneficial where they can be embedded. Even light-touch external engagement within existing activities – such as bringing external industry judges into departmental/institutional 3MT¹⁹ or poster competitions – can provide opportunities for doctoral researchers to network with people in industry.

These interactions should wherever possible be accompanied by 'pre and post' reflection activities, so that the participant maximises their career and developmental learning from the activity. Effort may be needed to encourage the engagement of doctoral researchers with these sorts of opportunities. Ideally, it should be demonstrated that some of the skills learned will be useful in any career, and even better if there is benefit during doctoral study too.

Labour market information (LMI). As noted earlier, comprehensive data about the career paths of doctoral researchers is an essential (but not sufficient) part of the careers information aspect of any 'solution'. Understanding of relevant labour markets, including academia itself, is valuable to underpin any career thinking or decision, but appropriate data are not widely available, and this may mean that myths persist or are not countered. The total number of current doctoral researchers registered with UK institutions was 104,645 in 2021/22, which was 65% higher than it was in 2000, from HESA statistics. While the size of the academic staff population has also risen, it has done so much more gently. This has resulted in increased competition for academic research positions, and there has not yet been a similar increase in the absorptive capacity of the R&D ecosystem for highly-focused researchers, so there is competition for industry research posts too. Doctoral researchers may well be unaware of these sorts of trends, or aware of where their predecessors have forged their careers.

A key part of LMI (or perhaps, better, 'Labour Market Intelligence') is understanding of the **skills that employers seek**. While some large employers publish competency frameworks that underpin job positions that doctoral students could feasibly investigate when considering career options, they may not be intelligible within the context of doctoral study. Translating these into language that doctoral researchers recognise, and helping them to articulate the skills and attributes they have gained in a way that will appeal to employers, are key parts of career support or learning. Both the UK's Vitae RDF and the European Competence Framework for Researchers would benefit from clearer exposition of how the skills they cover are valuable beyond a research career and how they might be described elsewhere. There is also scope to help doctoral researchers realise the potential value of sources that

¹⁹ Three Minute Thesis

contain extensive alumni data, like LinkedIn, and how to access them effectively, as well as of the increasing number of doctoral career case study collections.

Record of learning

Although it focused on the professional/skill development of doctoral researchers rather than their career learning, we draw attention to an issue we raised in a recent study on future doctoral provision for AHRC.²⁰ Currently, the key measure of success in doctoral training (i.e. a doctoral programme) is the doctoral thesis, supported by an oral examination. This requires demonstration of the contribution to knowledge, but does not record the development of skills. There would be value in having some form of record of learning gain in relation to both research skills and transferable skills, including career learning, as part of doctoral assessment. This concept was introduced in Europe in the Bologna process, and a number of initiatives are taking forward the idea of a doctoral skills portfolio.²¹ Conceptually this is broadly similar to the Higher Education Achievement Record (HEAR) that was introduced for undergraduates, although many individual UK universities have preferred to pursue their own 'career award' schemes instead. It could be instructive to review European progress on this and consider introduction of a doctoral skills record (that includes careers learning) within doctoral assessment in the UK.

7 Further thinking about implementing enhanced career learning

Several of our interviewees were keen to focus on resourcing, but we have only touched on this lightly, believing that the purpose of this thinkpiece was to stimulate thinking about idealised career learning support (without closing off potential ideas due to perceptions around resourcing). We appreciate that resourcing would be a key consideration in future thoughts about whether/how to implement any of the ideas raised here.

Planning and relationships came out strongly as an issue in our interviews, including between careers service and researcher development teams. There was a sense that such colleagues would like to work together more if resources allowed. There was also a desire for them more consistently to work with academic staff developing doctoral programmes, believing that joint work at that stage (potentially at graduate school level) could result in more coherent doctoral support which in turn could produce better career outcomes. Some believed having careers service personnel on faculty and DTP/CDT committees was essential:

"Trying to embed that expertise and knowledge and understanding into the right places is really crucial because otherwise things have [already] been designed and planned... and you're trying to add to it. But if the person is in there at the start, hopefully, they can influence the design and the planning from the beginning rather than try to reverse engineer it later on."

Head of Researcher Development, research-intensive HEI

In the absence of a formal doctoral curriculum or KPIs based on career outcomes, some incentivisation for institutions to embed careers service leaders/personnel within strategic and decision-making teams about doctoral programmes could be needed.

²⁰ *Doctoral training in the arts and humanities: Engagement, review and future options*, CRAC for AHRC, 2022

²¹ E.g. <https://projects.uni-foundation.eu/DocTalent4EU/>

The **doctoral student voice** was seen as an essential part of establishing engaging and effective CEIAG for doctoral researchers. Our discussions suggested the way in which this was being heard was mostly ad hoc:

"There may be something about the PGR voice... a lot of change is driven by...student voice - by things like NSS and students' associations. Is the PGR student voice much quieter? Or is it silenced? 'Don't make a fuss because...just don't make a fuss'"

Director of careers service, research-intensive HEI

We pose the question of whether doctoral students have weaker voice and representation in terms of influential national surveys and formalised representative bodies compared with undergraduates in particular. It would be valuable to ensure the doctoral student voice becomes heard more prominently and that doctoral students are aware that they can influence their experience (in the ways that undergraduates do).

Receptiveness to marketing. We know from surveys and experiences that students, including doctoral, often may not recognise the careers support they are getting as 'careers support'. Depending on their vocational maturity, they may not be receptive to marketing and communications about careers support. As noted earlier, some doctoral researchers may have unhelpful assumptions about what career support is or is not, and/or have experienced barriers accessing it. Furthermore, academics are not always good role models as they tend to manage their careers through networking rather than using professional careers advice. For these reasons, the way the any offer of support is described may be particularly important for doctoral researchers.

Describing the offer and impact. With the backdrop of a substantial minority of academic supervisors being sceptical about the value of CEIAG activities for doctoral researchers, a more clearly defined offer of what a careers service can do for doctoral researchers would be beneficial. This would need also to address how careers support intersects with the role of academics, especially supervisors. In our evaluation of the PIPS scheme, despite one in five supervisors being hostile to the internship idea, almost all felt that their student had learned some new skills through the placement. The doctoral researchers themselves, and to some extent their supervisors, felt that this learning included some skills that would help them complete their doctoral research after the placement. Our interviewees for this thinkpiece felt that the recent focus on improving research culture could help improve the receptiveness of academics to engage more proactively in careers support for their doctoral researchers. However, this does beg the question of incentives for the supervisors, as such development and then the ongoing support for their students could be seen as an additional burden.

"Supervisor development ... even if it's really well designed and well attended, it can still be a bit tick box because it doesn't get embedded in the culture in the department."

Former head of researcher development, now HE consultant

"It's about modelling behaviour ...behaviour that can be picked up by a PhD or post-doc who works with somebody else... We do need to look at some of this bad behaviour ... and how that's challenged ... how people can feel safe, and how we can keep amazing researchers in academia because we're losing them." Careers consultant for researchers

"To some extent the learning and reflection and the conversations that are required ... would ideally be happening with the supervisor. ... The researching academic community are not skilled and able or prepared to do that."

Head of researcher development

Finally, there may be opportunities to facilitate development of a more proactively receptive community of employers, who understand the value of doctoral graduates. Some interviewees, asked whether they felt the labour market situation was one of an oversupply of doctoral graduates, felt it was not as simple as this. They also felt that that much of industry does not yet appreciate these highly skilled potential employees, so there was scope for elasticity or expansion of employer demand. While this view would have greater value if expressed by industry itself, there may again be lessons to learn from the undergraduate sector about how industry could position itself better, and how students could position themselves better in response. An example from a careers consultant demonstrates the importance of greater understanding and receptiveness amongst both employers and academics, in the context of doctoral researcher career learning (as well as the potentially valuable role of the careers professional in these interactions):

“The academic...thought they were doing a great job [bringing people from industry in front of doctoral students]. But unfortunately, they'd not read the audience, so they'd got 3 older white males [on the industry panel]. The panel talked about how researchers 'don't really have project management experience'. I could see...women in the audience ... kind of frowning. I had to go in and do a bit of damage control. [We] would have gently recommended [to the academic], 'maybe we could get this alumni in to speak' who really understands the researchers, what they do, their transferable skills”

8 Summary

This thinkpiece attempts to summarise the current landscape and key issues in career learning (or CEIAG) for doctoral researchers in the UK. Career-related support for undergraduates has benefited from universities' strategic interest and focus on employability as a result of post-study destinations being a key performance metric. By contrast, career learning is less embedded in doctoral training, for a multitude of reasons we outline.

It goes on to suggest a range of career-related activities and support that could be drawn upon in thinking about a model of idealised career learning for doctoral researchers – as much as possible of which, again ideally, should be accessible to all doctoral researchers. At the heart of these suggestions is our recommendation that career learning should be both perceived as integral to doctoral training and developed in a much more embedded way within doctoral study.