JoRMA
JOURNAL OF RESEARCH MANAGEMENT AND ADMINISTRATION

RESEARCH IMPACT TRAINING AND DEVELOPMENT SUPPORT FOR DOCTORAL STUDENTS

Reetika Suri-Ogilvie | Queen Mary University of London, UK | reetika@ogilviehome.co.uk
0000-0001-5509-2502

ABSTRACT

What is new?	This research-in-progress case study in one UK university setting looks at how supportive PhD supervisors are of impact work, what motivates PhD students to access impact support and whether there are barriers to PhD students from carrying out impact plans and what those barriers are.
What was the approach?	A mixed-method approach was used to collect quantitative data on student participation in impact training and qualitative data on their thoughts on impact work, supervisory support and motivators and barriers for doing impact work.
What is the academic impact?	Clinical science students found it easier to understand the direct impacts of their work compared to life science students. Over time, students developed a better understanding of the potential impacts of their work. The majority of students discussed their impact with their supervisors but did not discuss time, budget or monitoring plans for impact activities. The majority of students talked about a lack of supervisor support for impact work and a need for better supervisor training. Students identified motivators and barriers for doing impact work.
What is the wider impact?	The study suggests that there is a gap in training and support for doctoral students to develop the societal impact of their research. Impact work helps students to develop skills and experience valued by employers. However, PhD students may not receive impact training as part of their degrees. Supervisors may be unsupportive of PhD students doing impact work because it may distract from core research activities. Based on the study findings, the author has made recommendations for addressing this gap.

Keywords research impact, doctoral students, supervisors, training, support

INTRODUCTION

Universities have a fundamental role to play in learning and teaching and generating research impact and need to simultaneously embrace their role as targets for and enablers of change (Steele and Rickards, 2021). There are over 100,000 doctoral students studying in the UK (HESA, 2022). Postgraduate research often pushes the boundaries of knowledge and is, according to Professor Jeff Bamber, deputy dean (biomedical sciences) at the Institute of Cancer Research, 'fundamental and essential to the future of scientific research' (Manning, 2021). PhD students often teach and, particularly international students, bring diversity and new perspectives to their universities (Walker, 2018). They are also future research leaders (Jones, 2013).

This diverse student body navigates its way through the doctoral journey in different ways based on profiles, intentions and expectations in the quest for the self; the intellectual quest; and the professional quest (Skakni, 2018). Students are supported through their journeys through multiple sources of researcher development support i.e. supervisors, researcher communities and non-academic communities or individuals (Bitzer et al., 2018) as they traverse the socialisation processes that influence the success of their degrees (Gardner, 2007). In the UK, a major non-academic community of support is professional services staff in roles that support or manage research or are part of a Doctoral College, for example. This community forms part of university-sanctioned support for doctoral students (Wisker et al., 2017) and may also provide training beyond the scholarly support that students receive from their supervisors (Candy et al., 2019).

Universities in the UK also use the Researcher Development Framework, the major approach to researcher development in the UK, which describes the knowledge, attributes and behaviours of successful researchers (Vitae, 2010). The Framework, developed by Vitae in 2010 in order to implement the Concordat to Support the Career Development of Researchers, the Quality Assurance Agency for Higher Education's Code of practice for research degree programmes and the 'Roberts' recommendations for postgraduate researchers and research staff, names 'Engagement, influence and impact' as one of its four domains. This is because universities have a role to play in society, which is to create, disseminate and apply new knowledge (Aguinis et al., 2021). Indeed, UK Research and Innovation (UKRI) is the public body that is responsible for supporting research and knowledge exchange, including at higher education institutions in the UK. It 'exists to fund researchers who generate knowledge that society needs, and innovators who can turn this knowledge into public benefit' (UKRI, 2020). There is increased demand for research evidence that can inform policy and business decisions (Parliamentary Office of Science and Technology, 2017). Additionally, utilising public money to carry out research brings responsibility and accountability for maximising the benefit of research to society (Sandes-Guimarães and Hourneaux

Junior, 2020). Finally, in the UK, universities also go through research excellence evaluation exercises, such as the Research Excellence Framework (REF), which use impact measurement to determine how much research quality-related funding each university gets from the national research funding bodies (Penfield et al., 2014; UKRI, n.d.). The most recent REF exercise was in 2021 in which impact counted for 25% of total scores that universities earned. Together, these are the drivers that incentivise research impact in the UK.

Doctoral students are a key part of universities' impact work as they are major knowledge producers in collaborative partnerships and agents of knowledge transfer in these partnerships (Thune, 2009). Their research also contributes to social innovation and sustainable development, which enable universities to have societal impact (Belcher et al., 2022). From the student perspective, doing impact work helps to develop skills and experience valued by employers outside academia, such as negotiating and influencing. Stakeholder mapping can help them to think creatively and ambitiously about their research users, such as industry, government or charity partners, and how to engage with them. This can, in turn, broaden their network and future academic and non-academic career options (Laundon, 2017).

However, earlier research has reported that PhD students do not always receive formal or informal impact training as part of their degrees. Indeed, at the time that this earlier research was conducted impact training was directed at established academics only and doctoral students only had peripheral awareness of the impact agenda (Laundon, 2017). Furthermore, supervisors had concerns about PhD students doing impact work because it may distract from core research activities and interfere with the timelines for completion (Chubb and Reed, 2017). Others have found that there is a gap in training and support for doctoral students to do impact work in order to develop an impact culture within universities (Belcher et al., 2022).

The overarching aim of the research project reported here was, therefore, to address this gap to enable universities to better design and develop impact training and support mechanisms for students and thus drive forward their impact work. The author sought to: (1) improve the understanding of how supportive PhD supervisors are of impact work, (2) understand what motivates PhD students to access impact support based on their intentions and expectations in the quest of the self, intellectual quest and professional quest, and (3) whether there are barriers to PhD students from carrying out impact plans and what those barriers are.

METHODS

APPROACH AND DESIGN

The objectives (Chew, 2017) of this practice-based service evaluation study were to:

1. Record what students thought about impact and how it is discussed in their Faculties before the start of the project;
2. Examine supervisory support for impact planning and training; and

3. Analyse motivators and barriers for doing impact work amongst PhD students.

A sequential, mixed-method approach was used in this study in order to collect firstly quantitative data on student participation in impact training and then qualitative data on their thoughts on impact work, supervisory support they received and their motivators and barriers for doing impact work.

The University in which this case study was conducted has an intake of approximately 200 PhD students each year, roughly split between three Faculties. The project started with the Cohort Day on Impact for PhD students in the second year of their PhDs in February 2020, which 82 students attended. On the day, baseline data were collected about student understanding of research impact. The whole Cohort was invited to the Day to learn about research impact, why it's important and what services are available at the University to support impact work. Six months after this Day (August 2020) follow-up questionnaires were sent to students who attended. The questionnaires invited interest in participating in semi-structured interviews. Twenty-four months after the Day (February 2022) the same follow-up questionnaire was sent to students who attended the Day and interest in participating in semi-structured interviews was invited.

Ethics and Sampling

The study was set up as an evaluation of the support available for PhD students at the University. Interviewed students consented to being recorded, and the use of anonymised quotes from the interviews for research purposes. As a service evaluation, formal ethical review was not required, and no safeguarding or ethical concerns were identified in this study by the author or their managers either prior to its commencement or during the project. Non-gendered pronouns have been used in this article to protect participant identities.

There is baseline data from 51 students who attended the PhD Year two Cohort Day on Impact in February 2020 because not all the students who attended participated in baseline data collection. 21 students of the original 51 responded to the six-month follow-up questionnaire and 14 students of the original 51 responded to the 24-month follow-up questionnaire. 10 of the 21 students who responded to the six month follow-up questionnaire attended six-month follow-up semi-structured interviews. Five students of the 14 that responded to the 24-month follow-up questionnaire attended the 24-month follow-up semi-structured interviews. Four of the five 24-month interviewees also took part at six months. A flow diagram of the data points is shown in Figure 1.

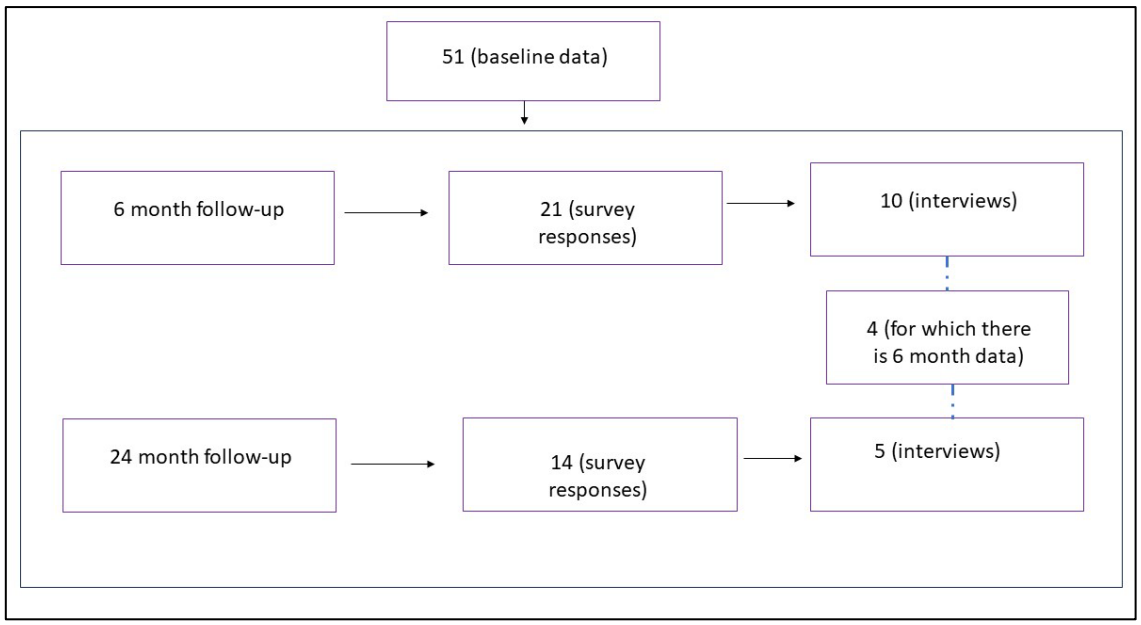


Figure 1. Flow diagram of data collection

DATA COLLECTION

Real-time feedback collected using Mentimeter

Real-time feedback was collected during the PhD Year two Cohort Day on Impact in 2020 via Mentimeter (Mentimeter, n.d.). The platform allowed the collection of free text and multiple choice answers on questions about what the students associated with the word 'impact' and how it was discussed in the Faculties and what they knew about it.

Six- and 24-month follow-up questionnaires

Questionnaires asked students whether they had discussed the impact of their research with their supervisor and/or the Impact Team and whether they had agreed on timelines, a budget and how they would monitor progress for impact activities with their supervisor. Data were categorised and managed in Excel. For each question, students were also given a free text box to add more detail about their experiences. The free text boxes were used to help construct questions for the semi-structured interviews described below.

Semi-structured interviews

The purpose of the interviews was to probe for more in-depth insights around the objectives of this research study. Students were asked to name their supervisor only if they felt comfortable doing so. This was done in order to establish whether the supervisor had been involved in the preparation of a REF impact case study based on the assumption that supervisors who had been involved in developing case studies would have a better understanding of the meaning and significance of research impact. Students were then asked what their research was about, what the expected impacts were, what conversations they had had with their supervisor about impact before the PhD Year two Cohort Day in 2020 and whether those conversations had evolved since

the session. If students said that they had not engaged in any impact-related conversations with their supervisor, they were asked further probing questions about what would encourage them to have those conversations or what they thought would happen if they initiated those types of conversations. Students were also encouraged to talk about what would motivate them to do impact work and how professional services support staff could support them in order to get them talking about what the barriers were.

In the 24-month follow-up interviews students were asked how their impact plans were progressing and what further conversations they had had with their supervisor about their impact plans and work. Where a student's supervisor was involved in preparing a REF impact case study, they were asked about any conversations they had had with their supervisor about the REF. They were also asked how professional services staff could support students in their impact work to enable them to talk about anything that motivated them or any barriers that they were facing and further probing. Comments from the free text box from the 24-month follow-up questionnaire and the six-month follow-up interview data were used to support the interview design process. For the one student for whom there was no six-month follow-up interview data, the six-month follow-up interview format was used at the 24-month time point.

Thematic analysis of the interviews

All data were managed using Microsoft Excel. A six-phase process was followed as outlined by Braun and Clarke (Clarke and Braun, 2013). All interviews were listened to and transcribed in the familiarisation phase of data analysis. An open coding approach was used to generate initial codes. In reviewing these, axial coding was used to find connections between codes and integrate them into categories. Finally, selective coding was used to generate inductive themes (Corbin and Strauss, 1990) on (1) student understanding of research impact, (2) supervisor support for impact planning and training and the (3) motivators for and (4) barriers to impact work, described in the findings section. For themes (3) and (4), the author has provided a more detailed description of the individual categories as they were sufficiently distinct from each other. Based on the findings of this research study the author has made practical recommendations for combating the barriers to PhD student impact work in the discussion section.

Findings

Faculty Representation in the Study Sample

The Humanities and Social Sciences Faculty is significantly underrepresented in data collected during the PhD Year two Cohort Day on Impact in February 2020, as seen in Figure 2. However, these data are self-reported and a significant proportion of students did not report belonging to a specific Faculty.

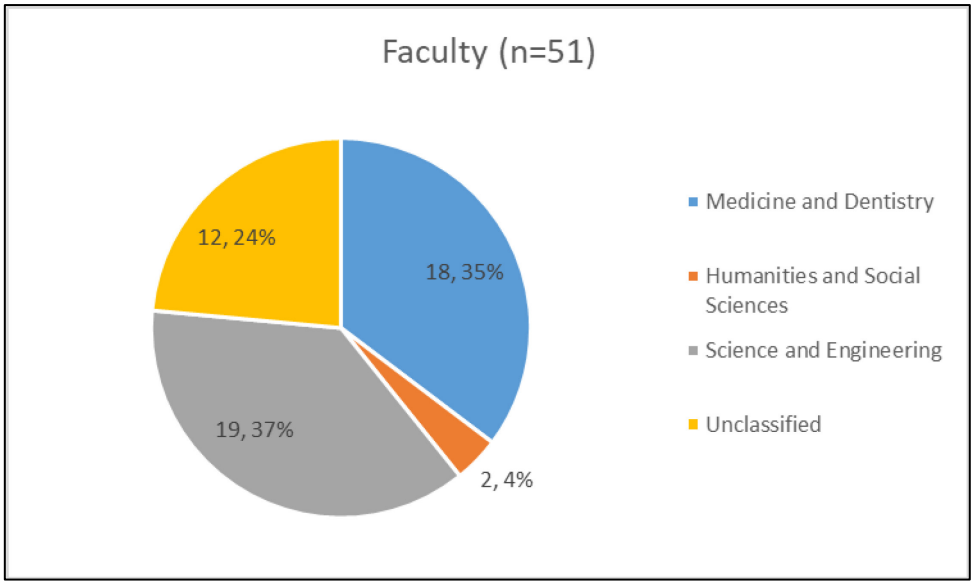
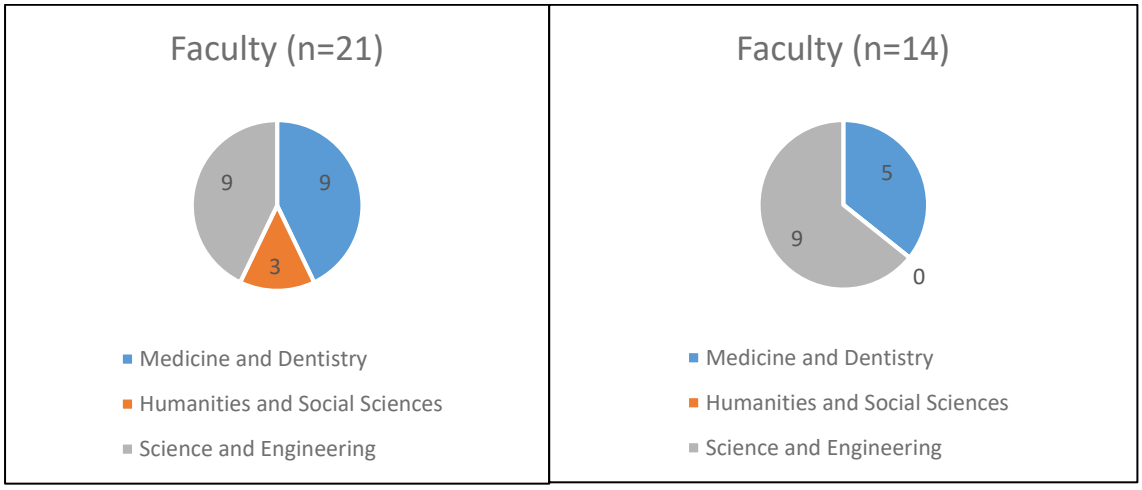


Figure 2: Breakdown of attendance figures based on Faculty. The figure shows breakdown by number and percentage of attendees.

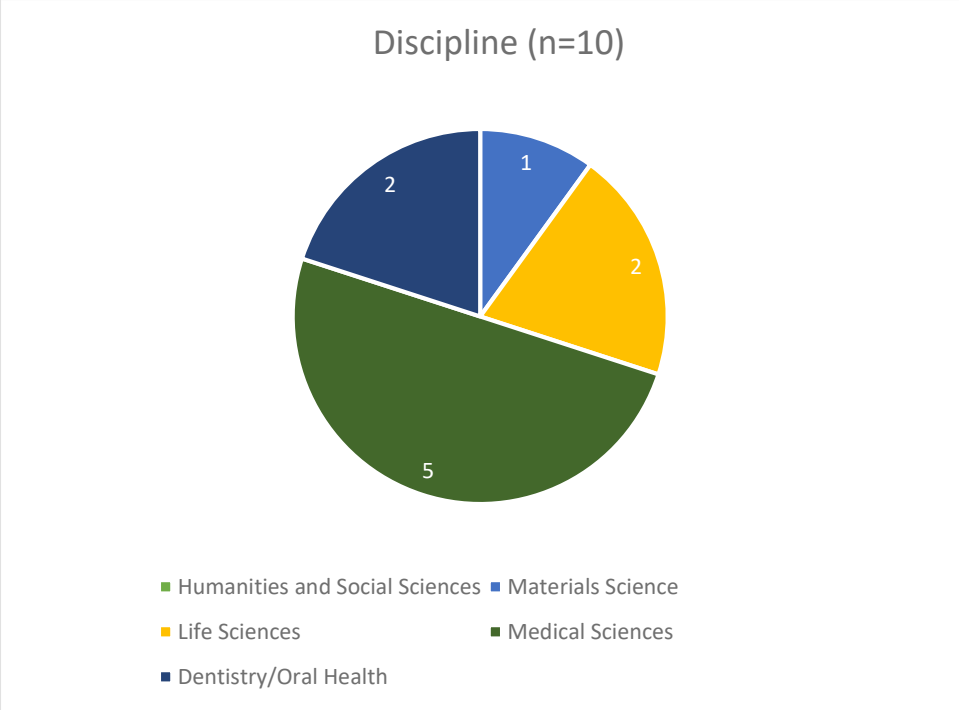
The Figure 3 shows the Faculties represented by the students who completed the six- and 24-month follow-up questionnaires. None of the students who responded to the 24-month follow-up questionnaire were from the Humanities and Social Sciences Faculty.



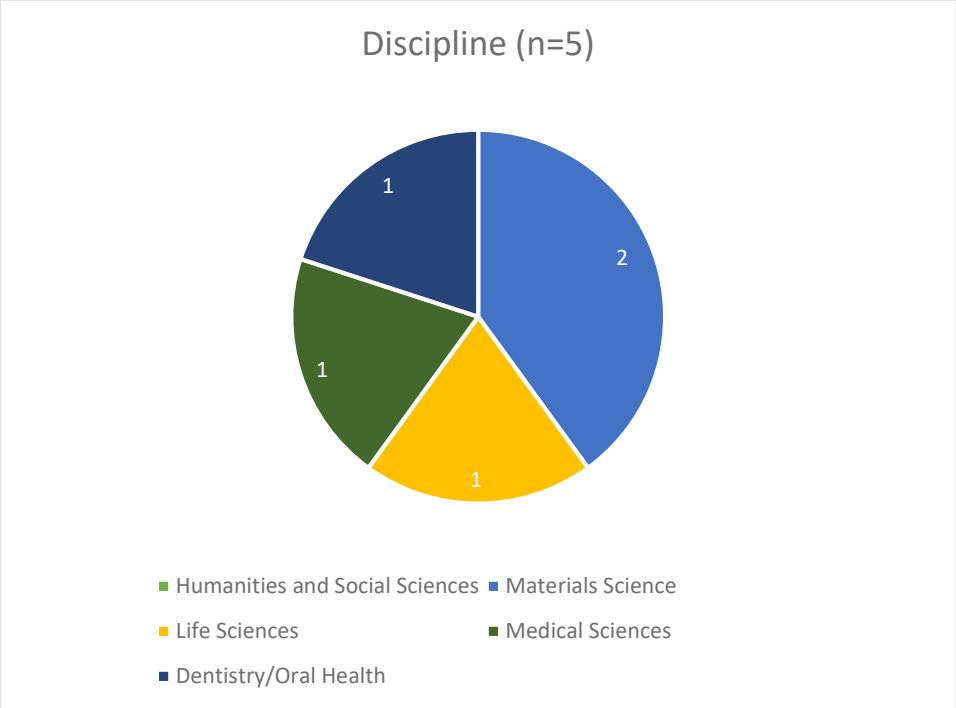
A) B)

Figure 3: Breakdown of responses to the six- and 24-month follow-up surveys by Faculty. The results are broken down into numbers and percentages. A) Faculty information for students who responded to the six-month survey. B) Faculty information for students who responded to the 24-month survey.

In the semi-structured interviews, students self-reported discipline areas that they were working in. No students from the Faculty of Humanities and Social Sciences signed up for either the six- or 24-month follow-up interviews, as shown in Figure 4.



A)



B)

Figure 4: Self-reported discipline areas for the students that attended semi-structured interviews at six and 24 months. Responses are broken down by number of students. A) Discipline information for students who attended six-month follow-up interviews. B) Discipline information for students who attended 24-month follow-up interviews.

THEME 1: STUDENT UNDERSTANDING OF RESEARCH IMPACT

At the start of the PhD Year two Cohort Day on Impact in 2020, students were asked what they associated with the word 'impact'. The resulting word cloud can be seen in Figure 5.

Figure 5: Students responded to the question 'what do you associate with the word 'impact'?' at the start of the PhD Year two Cohort Day on Impact in 2020. A word cloud was generated from the words and phrases that students used in response.

The students were also asked how impact is discussed in their Faculties. Of the 51 students engaged with the survey, only one student was from the Faculty of Humanities and Social Sciences and felt that impact was not at all discussed in their Faculty. No students felt that impact was only discussed in their Faculties for REF purposes.

Finally, students were asked what they knew about impact. They were given four statements and had to choose whether they strongly disagreed, disagreed, neither agreed nor disagreed, agreed or strongly agreed:

1. I know nothing about impact: the majority of students responding disagreed with this statement.
2. I've heard of impact but don't know what it is: there was a roughly even split between students who agreed and disagreed with this statement.
3. I'm in a research group with a REF impact case study: as expected, the majority of students responding disagreed with this statement. This is because the REF submission represents only a small minority of impact case studies across the University.
4. I always plan on my research having impact: there was a roughly even split between students who agreed and disagreed with this statement.

Six months after the PhD Year two Cohort Day on Impact, follow-up semi-structured interviews were carried out to understand how student understanding of impact had developed. Students working in the clinical sciences found it a lot easier to understand the direct impacts of their work and how it would translate into patient benefits

compared to life science students, one of whom thought, "am I doing anything that's worth doing and am I helping the world in any possible way?" However, one of the medical sciences students felt that "impact and how it changes things is not my job, which is to extract the data so that people can look at it and make it impactful so that policies can be made by the people that have the power to do so". Students also thought about research impact and the skills they were developing in doing impact work such as communication through conferences, public outreach and social media helpful for job applications. One student even organised a mental health survey for PhD students during lockdown and said that they "also think this is impact: gathering information from PhD students about how they're feeling and sending out the survey results to people within the Institute who have the power to change things and hopefully get better mental health support".

The 24-month follow-up interviews revealed a better understanding of the potential impact of students' projects and more of an interest in what impacts their work could have. They were able to articulate the kinds of impacts their work could have such as "enhance wellbeing, save money, help them [patients] get longer-life tooth implant[s] in their life" and "clinical impact to address some issues that the hospital is having or is struggling with and to help the NHS system with this particular problem". However, they still framed their impact work only around publications (Green, 2019) and talked about having impact plans but not knowing how to execute them. Students also talked about thinking about their impact while in the writing-up stage of their PhDs because "there is the final chapter of conclusions and that will be the moment where I actually start thinking about it more specifically because that's what I need to write about". Other students talked about thinking about the value of doing impact work for going into industry jobs or jobs closely related to their PhDs.

Theme 2: Supervisor Support for Impact Planning and Training

Students who attended the PhD Year two Cohort Day on Impact in 2020 were asked how they heard about the training session and what made them decide to come. No students had heard about the session from their supervisor or were recommended it by their supervisor. The majority of students heard about the session through the Doctoral College that supports all PhD students across the University. The majority of students attended in order to gain skills points, which are a requirement for PhD completion at the University, rather than to specifically learn about impact or make an impact plan.

In the six- and 24-month follow-up questionnaires students were asked three questions about discussions they had had with their supervisors about research impact since the PhD Year two Cohort Day on Impact in 2020. These were:

1. Have you discussed your research impact with your supervisor/the Impact Team?
2. Have you and your supervisor set aside time/budget for your impact activities?
3. Have you and your supervisor agreed on monitoring of progress of your impact activities?

The majority of students had discussed their research impact with their supervisors both six and 24 months after attending the PhD Year two Cohort Day on Impact. However, most students did not report discussions covering time, budget or monitoring plans for impact activities. In semi-structured follow-up interviews at six and 24 months, the theme of supervisory support for impact work was further explored with the PhD students. One student talked about having a conversation with their supervisor about adapting their project to suit their interests and make it more translational. They also talked about continuing the work post-PhD and although they didn't have any concrete plans in place they believed that "if I expressed an interest in continuing to my supervisor [they] would be supportive".

However, the majority of students interviewed talked about a lack of supervisor support for impact work and a need for better supervisor training. When asked about supervisory support for impact work one particular student said, "we don't really speak like that. If the supervisor wants to talk about it, they will, I guess. The barrier is the person I'm involved with. They have a lot of work on their hands and are not very interactive with their PhD students so it's unlikely that that sort of conversation will happen" … "but we don't really talk about impact as my main job is to extract and deal with the data so we don't have those kinds of conversations."

Another student talked about how "my supervisor is a very busy individual so getting meetings with [them] is very difficult even for the absolute necessities. [They're] not one of those who's in the lab with us or on the ground with us. [They're] very much in the background so we give [them] progress reports. [They're] not very hands on. [They're] also extremely busy, [they] runs the clinics, [they're] also now [in a senior leadership position] so [they're] very busy with a host of other things. Organisation isn't there and it's also something that would benefit impact to have a bit more structure like goals to go towards. Right now, there isn't any. There is money coming in, but the team is broken. There are easily identifiable ways to fix it, like a proper lab manager. Someone who's on the ground and can see what's going on. We've got our [professional development] points and the skills points and through doing that and the PhD student induction day is how I found out about impact and doing things like that and doing courses. That's from my side how I found out about it, but I have no idea what [my supervisor] does on [their] side."

The supervisors of both these students are involved in preparing REF impact case studies. Academics involved in preparing REF impact case studies receive extensive group and 1:1 training and support on generating impact. They also interact with senior Faculty and University leadership about their impact case studies on a regular basis and are often featured on websites for their impact work and nominated for impact awards. However, the student experiences suggest that the impact support that these academics get is not being translated into impact support for their PhD students.

Additionally, the University has a specialist team that supports academics thinking about protecting their intellectual property and starting their own spin-out companies. The team provides training for academics on a 1:1 basis, through workshops, including

with external trainers and internal case studies, and through online resources. However, one student talked about their supervisor being "keen to utilise [my] materials in real applications and [they] have suggested to start my own company to manufacture dental materials" … "but [they have not] shown me the pathway how to start a company, who should I contact, meetings or consultants to get started". Another student believed that "collaboration is very important for impact" … "but [I] don't know how much I can tell them about my project. I think it's up to the supervisor but my supervisor has not been very helpful and is not too keen on collaborating."

THEME 3: MOTIVATORS FOR IMPACT WORK

Category 3.1: Wanting to make a difference

Students want their research to have impact and have an understanding of who might benefit from it and how. They said that "it's half the reason why we get into science in the first place" and described how they "like something that has direct impact in patients or that will translate quicker". Collaborative, inter- and cross-disciplinary work can lead to strong research impact due to the use of different areas of expertise and approaches to address real-world problems. Greater reach can improve the uptake of research evidence-based solutions to the problems. Students recognised the value of "people talking about their research" for promoting collaboration. There was also an interest in science communication and wanting to help patients to try and understand research while they "are still trying to wrap their heads around their own disease let alone go into research [because] that just gets too much".

Category 3.2: Skills and career development

Students also talked about doing impact work in the context of developing their academic careers. They expressed an interest in working with their supervisors on the next stages of their projects or looking for jobs "closely related to my PhD". Students described how working on technology "that's not just for my patient group but a whole host of other conditions" … "would be good for future job applications." Students also expressed an interest in developing transferable skills that could be useful for careers outside academia such as "commercialising a business idea from research". However, there was an expectation that supervisors are able to provide support and guidance that is tailored to student's interests and needs.

THEME 4: BARRIERS TO IMPACT WORK

Category 4.1: COVID-19

This study began in February 2020, before the pandemic hit. COVID-19 has hugely disrupted PhD student research and had a big effect on how students are supported and their experiences. Timelines for completion were also affected. Students talked about not having "access to the software that I was supposed to be using so I was unable to work for some time" and having to "learn it by myself and without any sort of guidance". This led to having "less time than expected to finish and get the final results,

and then think about impact". Funding was also affected so it became a priority for students to get their data and move on to paid work. They also described being "stuck in my own world, doing my work" which was a problem because "it's difficult to make any impact of your work if you don't communicate your work to anybody".

However, some students reported being able to do some impactful research in spite of the pandemic. One student described making "kits that could be posted" because "people weren't coming in to clinic because they were having to shield". This also helped "to keep hospitals clear of anything unnecessary" and [with] the "blood bottle shortage". They also talked about their work on identifying "a cohort of patients who weren't producing antibodies [in response to the COVID-19 vaccine]" that was subsequently "really encouraged to get the [COVID-19 vaccine] booster". Another student described "funding specifically designed to make the situation better for postgraduate students due to COVID" using which they were able to publish an opinion piece and reach a non-scientific audience. Finally, a student reported feeling anxious about their supervisor moving to another country but feeling like their supervisor "hasn't gone anywhere because everything is online now" due to the pandemic. Therefore, there seems to be a balance of positive and challenging effects of COVID-19 on student experiences and ability to do impactful work.

Category 4.2: Timing of impact training and support

Twenty-four months after the PhD Year two Cohort Day on Impact in 2020, students talked about not remembering the content of the session. They felt that the training "would be really useful to have now towards the end of my PhD when I am […] seeing the full picture" as they were starting to think about what their conclusions meant and whether the conclusions were "relevant to anybody, researchers, policy makers". One student described how they restarted their PhD in their second year so at that point the training was not relevant as they didn't have any results to apply it to. Restarting a PhD project is not uncommon and typically happens when a student is a year into their three-year programme. The student suggested providing an impact training programme to students in the final or writing-up year of their PhDs, splitting students into groups based on the type of impact they're working on, for example, policy or commercialisation and providing training and support through the process of generating the impact. There was an implication that students would also learn from each other and by working together.

Category 4.3: Doing commercially interesting or sensitive research

While the University has a specialist team that advises on protecting intellectual property, students might not know about the team or understand commercialisation pathways. Students described "walking on tip toes to avoid leaking information" and wanting to "present my data at conferences" but being held back by a lack of understanding of "intellectual property rights". One of the students clarified that they did not think that their work was commercially sensitive, but it was not clear from the interview whether the student's research team was being advised by the University's

specialist commercialisation team. The specialist team also advises on publication strategies based on the potential impact and commercial sensitives of projects.

Category 4.4: Regulatory limitations

The University attracts students and researchers from all over the world. Particularly in dentistry and the medical sciences, a lack of recognition or accreditation of international qualifications to practise can be a barrier to carrying out impact work for international students in the UK. However, there are other ways in which students can work with patients that do not breach regulatory requirements. The University has a specialist team that can advise on this, alongside support from the Doctoral College and Impact Team. However, teams and supervisors need to work together to come up with a solution that works for the student and project. The data collected in this study suggest that this is not happening. Students described how, as a dentist, they "prefer to work with patients" but their supervisor was not supportive of allowing "any sort of treatment or interaction with patients".

Category 4.5: Lack of support beyond the supervisor-student relationship

The primary supervisor is the key point of contact for each student but all students at the University have at least two supervisors. Additionally, there is support available through the Doctoral College and other professional services, but the data show that this support is not going far enough. Students described being invited to showcase their research at public engagement events as being "fine if you have something fancy that you're working on, like virtual reality, which can be showed off. Kids and adults will love it. But it's not the right place for me to show my research as I have nothing to show apart from my experiments and it wouldn't be as fascinating." They reported hearing an impact "story about a woman who made something and then sold the company for a lot of money. It made me think that my research will never make me huge amounts of money. Am I doing something wrong?"

Students need tailored advice and support in order to carry out meaningful impact work that's relevant to their projects. In some cases, students reported that it took them some time to realise that there "is an actual person that I can talk to" and get "the confidence to contact student support" after having "difficulties" with getting impact support from their supervisors. They felt that "there's so much in terms of what students can do to help themselves, but we can hit a wall with what we can do on our own". They were worried about their impact work being affected "negatively by extremely busy or disinterested supervisors" if their supervisors were their only source of support. They also talked about impact work not being "incorporated into your PhD as something you have to do. It would be nice [but] why would I take on an additional thing to do?" Therefore, the current structure of a PhD in the UK, which does not allow for time and space to do impact work, is also a barrier.

DISCUSSION

There is a known gap in training and support, including supervisory support, for doctoral students to carry out impact work (Belcher et al., 2022). This practice-based, service evaluation study at a single UK University sought to improve understanding of why that gap exists by exploring research questions about student understanding of research impact work, supervisory support and motivators for and barriers to impact work.

A major motivator for researchers to do research is to change something about the world and make a difference (Zain et al., 2011). This case study has found that the majority of the students interviewed (at both six- and 24-month time points) see value in doing impact work. They want to make a difference through their work and see how impact work can help develop their skills, careers, networking opportunities and the visibility of their work. Doctoral students are our future research leaders and so it is vital that they are trained and supported to develop their 'Engagement, influence and impact', as outlined in the Vitae Researcher Development Framework (Vitae, 2010).

STUDENT INTEREST IN AND UNDERSTANDING OF IMPACT

Students interviewed for this project could broadly articulate the potential impacts of their work but had less of an understanding of the different pathways to impact and how they could evaluate and evidence the impact of their work. There was a tendency to use the term impact interchangeably with terms such as science communication and dissemination. However, this is not uncommon behaviour even amongst senior, more established academics, including those involved in preparing impact case studies for the REF.

THE VALUE OF IMPACT WORK ACROSS THE DISCIPLINES

From Doctoral College data on attendance (not reported in this case study) we know that the PhD Year two Cohort Day on Impact in 2020 had very low attendance by students from the Faculty of Humanities and Social Sciences. There was similar low uptake of the 6-month follow-up questionnaire. No students from the Faculty of Humanities and Social Sciences answered the 24-month follow-up questionnaire or attended any interviews for this study. Research in the humanities and social sciences typically generates policy, culture or societal impacts and impact is often deeply embedded in the research process without necessarily being defined as such (Breel, 2021). Thus, students may not feel the need for separate impact training or may struggle to differentiate between their research and impact plans. Discussions with students in the Science and Engineering Faculty working on research areas that better align with the humanities or social sciences, such as psychology, also revealed a feeling that impact work was not for them because they had nothing tangible like a company or product to show for their work or their work was not affecting patients. However, this may also be a by-product of an institutional research culture that is science- and medicine-focused and has also led to the professional services support available at the

University, for example, business development and intellectual property and commercialisation support, being largely geared towards science and medical research. When students were asked how impact is discussed in their Faculties, most either said it's for everyone or it's not discussed at all. Therefore, there is still some work to be done on developing a research culture in which impact work is valued across the disciplines and for everyone, from PhD students up to established researchers.

Supervisor Attitudes Towards Impact Work

Supervisors involved in preparing REF impact case studies tend to be well established senior researchers. Interviews with their students revealed that the supervisors had little time to have conversations with their students about impact. In fact, students of such supervisors felt that they were largely left without direction or to seek direction from other lab members where they could. Furthermore, interviews with students whose supervisors were not involved in preparing REF impact case studies revealed that supervisors were not necessarily themselves aware of what professional services impact support is available in order to guide their students. All students at the University have at least two supervisors. However, this study showed that students had varying levels of interaction with and support from their additional supervisors. Some students did not mention additional supervisors at all, some students mentioned seeing them in addition to their primary supervisors and some students talked about heavy involvement of their additional supervisors in their projects. One student suggested mandatory supervisor training, which the University conducts, but there is a clear need for better mechanisms to hold supervisors accountable for poor supervision where impact support is concerned.

Study Limitations and Suggestions for Future Research

The COVID-19 pandemic was a major confounding factor in this study. PhD student projects were significantly delayed by the crisis and student experiences were hugely affected. The study was able to reveal some insights into the effects of COVID-19 on PhD student experiences but further work needs to be done to probe these. The pandemic put research impact at the bottom of most students' and supervisors' agendas, which may also have been the reason for the lack of engagement with the follow-up questionnaires and interviews. Students reported that they were more focused on finishing their projects and moving on than doing impact work.

This is a case study within a single UK university based on a self-selected, sample of students, probably interested in talking about impact and sharing their experiences with training and supervisor support for impact work. The case study did not follow whether students received any impact training either prior to attending the cohort day or in the time between the cohort day and study follow-up timepoints. Useful next steps would be to study whether there is a relationship between student demographics such as gender, career stage or whether students are domestic or international students and understanding of and attitudes towards research impact.

Recommendations to Combat the Barriers to Impact Work for PhD Students

Developing the Institutional Research Culture

Senior management within institutions should celebrate impact of all types and not just focus on impacts that are commercial or tangible in nature. Impact work from across the disciplines should be incentivised and impact work should be encouraged at all levels, from PhD students up to established researchers. This needs to go beyond the REF process in which only a minority of case studies are showcased in order to win quality-related funding (Gibney, 2016; UKRI, n.d.). There are a number of ways in which this can be done, for example, through awards, web profiles, appraisals or promotions criteria. After all, the majority of research carried out in the UK utilises public money and this brings with it a responsibility for maximising the benefit of research to society. Indeed, UKRI, which allocates public money for research on a competitive basis in the UK, emphasises that impact is core for its application process (UKRI, 2020).

Putting Support Structures in Place

In the context of this case study, supervisors received mandatory training and students are supported through the Doctoral College. However, there need to be better mechanisms in place to ensure that supervisors are meeting their obligations and to hold them accountable for poor supervision. Busy academics who attract large amounts of funding and have successful research programmes may not always be good supervisors and while they might be able to provide a research environment that a PhD student could learn a lot from there needs to be appropriate support in place for the student (Hope, 2021). Supervisors should also be able to effectively signpost professional services support available to students with specific needs or interests, for example, to set up a company or work with patients. Students should receive formal impact training (Laundon, 2017). Additionally, training and signposting should happen in a timely manner. Students working on commercially interesting or sensitive projects should receive training on publication and dissemination strategies to enable their impact work without hampering their ability to protect any intellectual property arising from their work (Kunttu and Neuvo, 2019).

Changing PhD Requirements in the UK

One student commented that they did not see their role in the lab as being anything beyond collecting and interpreting data. Due to their supervisor's supervision style, they believed that impact work was down to people in 'power' to make 'impactful policies'. This is not an uncommon way for PhD students to be viewed, especially in big lab environments. They may be seen as a pair of hands to generate data as part of a bigger picture which they may never understand or get involved with. However, involving PhD students in impact work is fundamental for building the UK's research workforce and a world-class research base (Belcher *et al.*, 2022). It is also essential for helping them to

develop skills that are valuable to employers, both within and outside academia (Candy et al., 2019).

To support this, funders should include impact work in their expected timelines for PhD project completion. These timelines should allow for flexibility, based on the type of impact the project has the potential to generate. This will alleviate concerns that impact work can distract from core research and interfere with timelines for completion (Chubb and Reed, 2017). Furthermore, funders should require that each project has a relevant impact advisor to advise on and monitor progress of impact activities towards set milestones in the same way that research advisors do for research activities. Impact should also be addressed in the thesis and *viva* to provide an extra level of accountability for the work.

CONCLUSION

In conclusion, impact is fundamental to the research process, especially where public money is being used to carry out the research (Sandes-Guimarães and Hourneaux Junior, 2020) and therefore PhD students need to be trained and supported to carry out impact work.

In this case study we have seen that PhD students receive support through their supervisors, the Doctoral College and professional service support staff within the University. They also have external regulations to adhere to that are set by their funders. Therefore, it is important that these support and regulatory structures work well together in order to help students to overcome the significant challenges they face when trying to carry out impact work.

Based on the findings of this practice-based, service-evaluation the author has made recommendations to help combat these challenges, including to the University in which this evaluation was conducted. The work also paves the way for further research on this topic.

ACKNOWLEDGEMENTS

I would like to thank Drs. Natalie Wall, Zi Parker, and Nancy Schumann for helping to develop the research ideas discussed in this manuscript, supporting me to carry out the work and contributing to the final draft of the manuscript. I would also like to thank Dr. Charmaine Williamson for her mentorship, guidance and support during the writing up phase of this manuscript.

REFERENCES

Aguinis, H., Yu, L. and Tosun, C. (2021), "How to enhance scholarly impact: recommendations for university administrators, researchers and educators", *International Journal of Contemporary Hospitality Management*, Emerald Group Holdings Ltd., Vol. 33 No. 8, pp. 2485–2499, doi: 10.1108/IJCHM-10-2020-1189.

Belcher, B.M., Claus, R., Davel, R. and Jones, S.M. (2022), "Evaluating and improving the contributions of university research to social innovation", *Social Enterprise Journal*, Emerald Group Holdings Ltd., Vol. 18 No. 1, pp. 51–120, doi: 10.1108/SEJ-10-2020-0099.

Bitzer, E., Frick, L., Fourie-Malherbe, M. and Pyhalto, K. (2018), *Spaces, Journeys and New Horizons : For Postgraduate Supervision*, Vol. 5, Sun Press.

Breel, A. (2021), "Meaningful impact in Arts and Humanities research: Who decides?", *National Centre for Academic and Cultural Exchange*, available at: https://ncace.ac.uk/2021/10/05/meaningful-impact-in-arts-and-humanities-research-who-decides/ (accessed 5 January 2024).

Candy, J., Rodrigo, P. and Turnbull, S. (2019), "Exploring doctoral students' expectations of work-based skills training", *Higher Education, Skills and Work-Based Learning*, Emerald Group Holdings Ltd., Vol. 9 No. 3, pp. 403–417, doi: 10.1108/HESWBL-01-2018-0008/FULL/XML.

Chew, B. (2017), *Verbs Used to Write Research Objectives*. https://www.academia.edu/2912798/Verbs_Used_to_Write_Research_Objectives

Chubb, J. and Reed, M. (2017), "5 ways to fast track the impact of your PhD", available at: https://www.fasttrackimpact.com/post/2017/02/08/5-ways-to-fast-track-the-impact-of-your-phd (accessed 7 July 2022).

Clarke, V. and Braun, V. (2013), "Teaching thematic analysis: Overcoming challenges and developing strategies for effective learning", *The Psychologist*, Vol. 26 No. 2, pp. 120–123.

Corbin, J. and Strauss, A. (1990), "Grounded Theory Research: Procedures, Canons, and Evaluative Criteria", *Qualitative Sociology*, Vol. 13, doi: 10.1007/BF00988593.

Gardner, S.K. (2007), "'I heard it through the grapevine': Doctoral student socialization in chemistry and history", *Higher Education*, Kluwer Academic Publishers, Vol. 54 No. 5, pp. 723–740, doi: 10.1007/s10734-006-9020-x.

Gibney, E. (2016), "Major review calls time on 'gaming' in UK research assessment", *Nature*, Springer Science and Business Media LLC, doi: 10.1038/NATURE.2016.20343.

Green, T. (2019), "Publication is not enough, to generate impact you need to campaign | Impact of Social Sciences", *LSE Impact Blog*, September, available at: https://blogs.lse.ac.uk/impactofsocialsciences/2019/09/27/publication-is-not-enough-to-generate-impact-you-need-to-campaign/ (accessed 11 August 2022).

HESA. (2022), "Who's studying in HE?", available at: https://www.hesa.ac.uk/data-and-analysis/students/whos-in-he#numbers (accessed 7 July 2022).

Hope, L. (2021), "Research supervision: working with the individual in front of you | THE Campus Learn, Share, Connect", November, available at: https://www.timeshighereducation.com/campus/research-supervision-working-individual-front-you (accessed 1 September 2022).

Jones, M. (2013), "Issues in Doctoral Studies-Forty Years of Journal Discussion: Where have we been and where are we going?", doi: 10.28945/1871.

Kunttu, L. and Neuvo, Y. (2019), "Balancing learning and knowledge protection in university-industry collaborations", *Learning Organization*, Emerald Group Holdings Ltd., Vol. 26 No. 2, pp. 190–204, doi: 10.1108/TLO-06-2018-0103.

Laundon, M. (2017), "PhD students should be taught more about research impact and engagement", available at: https://blogs.lse.ac.uk/impactofsocialsciences/2017/12/18/phd-students-should-be-taught-more-about-research-impact-and-engagement/#:~:text=students%20about%20impact%3F-,Integrating%20research%20impact%20and%20engagement%20into%20PhD%20programmes%20may%20help,requiring%20demonstration%20of%20research%20impact. (accessed 7 July 2022).

Manning, E. (2021), "PhD students often break new ground': the importance of postgrad work in science", available at: https://www.theguardian.com/education/2021/feb/16/phd-students-often-break-new-ground-the-importance-of-postgrad-work-in-science (accessed 7 July 2022).

Mentimeter. (n.d.). "Engage your audience & eliminate awkward silences", available at: https://www.mentimeter.com/ (accessed 7 July 2022).

Parliamentary Office of Science and Technology. (2017), *The Role of Research in the UK Parliament*.

Penfield, T., Baker, M.J., Scoble, R. and Wykes, M.C. (2014), "Assessment, evaluations, and definitions of research impact: A review", *Research Evaluation*, Vol. 23 No. 1, pp. 21–32, doi: 10.1093/reseval/rvt021.

Sandes-Guimarães, L.V. de and Hourneaux Junior, F. (2020), "Research impact – what is it, after all? Editorial impact series part 1", *RAUSP Management Journal*, Emerald Group Holdings Ltd., Vol. 55 No. 3, pp. 283–287, doi: 10.1108/RAUSP-07-2020-202.

Skakni, I. (2018), "Reasons, motives and motivations for completing a PhD: a typology of doctoral studies as a quest", *Studies in Graduate and Postdoctoral Education*, Emerald Group Holdings Ltd., Vol. 9 No. 2, pp. 197–212, doi: 10.1108/SGPE-D-18-00004/FULL/XML.

Steele, W. and Rickards, L. (2021), "The Role of the University in Society", *The Sustainable Development Goals in Higher Education*, Palgrave Macmillan, Cham, pp. 67–106, doi: 10.1007/978-3-030-73575-3_3.

Thune, T. (2009), "Doctoral students on the university-industry interface: A review of the literature", *Higher Education*, Vol. 58 No. 5, pp. 637–651, doi: 10.1007/S10734-009-9214-0.

UKRI. (2020), "Pathways to Impact: Impact core to the UK Research and Innovation application process".

UKRI. (n.d.). "Our funds for research and knowledge exchange", available at: https://www.ukri.org/councils/research-england/our-funds-for-research-and-knowledge-exchange/#:~:text=Research%20England%20administers%20the%20funds,funding%2C%20which%20is%20allocated%20annually (accessed 7 July 2022).

Vitae. (2010), Researcher Development Framework. https://www.vitae.ac.uk/vitae-publications/rdf-related/researcher-development-framework-rdf-vitae.pdf/view

Walker, A. (2018), "Why PhD Students Are So Important for Universities", available at: https://www.phdstudies.com/article/why-phd-students-are-so-important-for-universities/ (accessed 7 July 2022).

Wisker, G., Robinson, G. and Bengtsen, S.S.E. (2017), "Penumbra: Doctoral support as drama: From the 'lightside' to the 'darkside'. From front of house to trapdoors and recesses", Innovations in Education and Teaching International, Vol. 54 No. 6, pp. 527–538, doi: 10.1080/14703297.2017.1371057.

Zain, S.M., Ab-Rahman, M.S., Mohd Ihsan, A.K.A., Zahrim, A., Mohd Nor, M.J., Mohd Zain, M.F., Hipni, A., et al. (2011), "Motivation for research and publication: Experience as a researcher and an academic", Procedia - Social and Behavioral Sciences, Vol. 18, pp. 213–219, doi: 10.1016/J.SBSPRO.2011.05.030.

BIOGRAPHY

Reetika Suri-Ogilvie (ORCID ID: 0000-0001-5509-2502) is a research management professional with over six years' experience in the field. She started working in research management as a research impact officer in a British university. During that time, she developed expertise in advising and supporting academics to generate and develop their research impact from medical, life and physical science research. She worked with different types of impact from policy, societal and cultural impact to commercial and healthcare impact and impact on services. Reetika also has expertise in developing and writing impact case studies for websites, reports and the Research Excellence Framework (REF). She has extensive experience in developing and delivering impact training on the basics of impact, planning and writing about impact and impact evaluation and has worked with academics at a range of career stages from PhD student level upwards. She is also a trained and experienced career coach and mentor. Currently, Reetika works at the National Institute of Health and Care Research (NIHR), leading on monitoring and evaluation of NIHR's £600M infrastructure portfolio.

Prior to working in research management, Reetika was a laboratory-based translational researcher working on occupational health, air pollution and respiratory disease. She got her PhD from Queen Mary University of London in 2014 after completing her undergraduate degree in Biochemistry at the University of York in 2011. She also spent a year working in drug discovery at GlaxoSmithKline.

Accepting Editor: Louise Maythorne. | **Received**: 1December 2022 | **Accepted**:22 January 2024.
Cite as: Suri-Ogilvie, R. (2014). Research impact training and development support for doctoral students. *Journal of Research Management and Administration*, 3(1), 202402131. https://doi.org/10.18552/jorma.v3i1.916