Vitae Occasional Papers: Volume 1

The impact of researcher development

A collection of papers based on workshops at the
Vitae Researcher Development International Conference,
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Foreword

I was delighted to have the opportunity to edit this first series of 'Vitae Occasional Papers' originating from the 'Vitae Researcher Development International Conference' of 2013[1]. As ever, the conference was a vibrant two days, drawing together a wide-ranging international group of participants interested in the development of researchers, for presentations, workshops and many a debate. On this occasion, those presenting their work were also asked if they would like to write an 'occasional' paper based on what they had contributed to the conference within the theme of the 'Impact of Researcher Development'. Vitae were very pleased to receive the six papers presented here as volume one of the series of 'Vitae Occasional Papers'.

It is crucial when evaluating the impact of an activity, to first establish a baseline of evidence that provides an understanding of the issue for which provision will subsequently be developed and implemented to achieve change. As such, this volume of the occasional series, commences with papers from Keith Fildes of Sheffield Hallam University and Tracy McClelland and Melanie Cooper of the University of Bradford, who describe how they have established a baseline from which their provision will be built. Thematic in both papers are the challenges of supporting researchers and carrying out research in a predominantly teaching-led institution or profession.

We then move on to consider three papers outlining provision that has been implemented, and the subsequent initial outcomes that have been achieved. Neil Wiley and Paul Spencer of the University of the West of England take a pedagogical approach, building on work-based learning frameworks, to provide a new approach to the delivery of development activity for postgraduate researchers. Lynette Browning, Kirrilly Thompson and Drew Dawson of Central Queensland University show how their research into careers for researchers has led to the successful implementation of a programme of activity to develop researchers and their research outputs. In the third paper in this group, Katherine D'Souza of the University of Birmingham addresses the challenging evaluation conundrum of how to gather evidence of longer-term researcher development outcomes. Katherine reports some interesting initial findings of an alumni case study project.

Our final occasional paper comes from Rob Daley of Heriot Watt University. For training and development practitioners, a common difficulty with evaluation is finding the time to do an in-depth evaluation study, whilst fulfilling the normal demands of their role. Rob touches upon themes from previous papers, reporting on outcomes achieved; he also describes how evaluation can be carried out by utilising the support of Masters students as part of their dissertation projects.

We hope you enjoy this first volume of occasional papers and look forward to your participation in and feedback on future conferences and publications.

Dr Tony Bromley

Vitae Yorkshire and North East Regional Hub Coordinator, Senior Training and Development Officer, University of Leeds

[1] Full details of the conference programme are available at https://www.vitae.ac.uk/events/past-events/vitae-researcher-development-international-conference-2013 (Accessed 01/07/14)

2013 conference workshops

The occasional papers presented here originate from the following workshops at the Vitae Researcher Development International Conference 2013

A4 – Researcher development in a teaching-led institution
Dr Keith Fildes

https://www.vitae.ac.uk/events/past-events/vitae-researcher-development-international-conference-2013/workshops/copy13_of_so-youre-new-to-uk-higher-education-institutions

B10 – Inputs and outputs: building research capability in an emerging research culture
Lynette Browning

https://www.vitae.ac.uk/events/past-events/vitae-researcher-development-international-conference-2013/workshops/copy27_of_so-youre-new-to-uk-higher-education-institutions

D9 – A novel approach to enabling postdoctoral research staff to become successful, autonomous and independent researchers within 5 years of completion
Dr Melanie Cooper, Dr Gabrielle Tracy McClelland

https://www.vitae.ac.uk/events/past-events/vitae-researcher-development-international-conference-2013/workshops/copy44_of_so-youre-new-to-uk-higher-education-institutions

B8 – Engaging supervisors and students in skills development: Using the RDF to underpin a remotely-delivered professional practice module
Dr Paul Spencer, Dr Neil Willey

https://www.vitae.ac.uk/events/past-events/vitae-researcher-development-international-conference-2013/workshops/copy25_of_so-youre-new-to-uk-higher-education-institutions

Special interest session – The value of researcher development: case studies of postgraduate researcher alumni
Katherine D'Souza

C5 – Using masters' projects to evaluate researcher development activities
Dr Rob Daley

https://www.vitae.ac.uk/events/past-events/vitae-researcher-development-international-conference-2013/workshops/copy33_of_so-youre-new-to-uk-higher-education-institutions

Establishing a baseline as the first step to evaluating impact
Sheffield Hallam University case study

Dr Keith Fildes, Sheffield Hallam University, UK

Introduction

Experienced developers arrive in new roles with their own portfolio of materials and refined thinking about the techniques of their profession. They know that the best training and development can never come 'off-the-shelf', and must be both co-created with key stakeholders and informed by the specific needs of those whose development needs are being addressed. Therefore, although keen to make an instant impression, the first task of the developer must be to understand their new environment, orientate themselves in the unique situation they have entered, and establish an evidence-base to inform priorities. Demonstrating that interventions are evidence-based is key to gaining legitimacy for development work, particularly in a higher education institution. All this activity can be recorded and used to create a baseline, against which future provision and its impact can be measured.

This paper details the activities and findings of the Researcher Development Adviser at Sheffield Hallam University during their first nine months in post. This was a new role and the University had no tradition of co-ordinated researcher development. The individual had previous experience working in academic development, although not in a teaching-led institution The output of this work was a detailed baseline report for the University's Research and Innovation Committee. The key findings of that report have been incorporated into this paper.

Context: research at Sheffield Hallam University

Whilst Sheffield Hallam is a teaching-led institution, it is actively research-engaged and around 28% of academic staff undertake research.[2] Within the University's portfolio of research activity, contract research accounts for almost half of income; such funders are not traditional drivers of the researcher development agenda, compared to research councils. The University is strongly committed to producing excellent research and believes in investing in developing a capable, confident, recognised and valued community of researchers.

Sheffield Hallam concentrates its research strength in specific subject areas of international standing. Research is largely clustered into 16 research centres and institutes, together with several specialised research groups; these organisational structures cover 11-13 REF UOAs[3]. In the 2008 RAE[4], 68% of research was rated international quality or above. The University was ranked sixth for 'research power' of the post-92s[5], taking into account both the quality and volume of the submission. To put this in context, Sheffield Hallam is the third largest university in the UK[6] and explicitly aims to be 'the best University for teaching'[7].

Unlike many other institutions, Sheffield Hallam University has been largely unaffected by the Roberts' funding curve[8]. Investment in researcher development over the last decade has been incremental and sustainable, rather than pump primed. The University's researcher development drivers are therefore internal – its commitment to increasing the quality and quantity of research outputs and to facilitating career satisfaction of researchers for reasons of retention and recruitment.

In terms of development previously offered, research ethics, grant writing and funding, intellectual property (IP) and other support courses for research staff were provided by the research office, complemented by local activities within research centres and groups. postgraduate skills workshops and courses on local research methods also existed for postgraduate research students (PGRs). However there had been no real co-ordinated or strategic researcher development.

Aims: researcher development

In December 2012 the University appointed a Researcher Development Adviser. The principal objective of this post was to design and deliver a dedicated development programme for researchers. In particular, the focus was to be on the 'Roberts' Agenda' of career development and transferable skills.

Researcher development at Sheffield Hallam University embodies a broad definition of researcher – anyone in the institution undertaking, or interested in potentially undertaking, research and knowledge transfer. The main engagement is with those aligned to Research Excellence Framework UOAs, but efforts are made to include those outside these structures. The focus is on early and mid-career researchers, although development is open to all research staff. While core postgraduate researcher training is co-ordinated and delivered within faculties, all centrally-provided researcher development is open to postgraduate researchers, except where it is not relevant or appropriate.

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[2] 420 staff were 'REF-considered'. (See below for REF explanation) There are circa 110 Early Career Researchers (ECRs) (grade 6-8 research staff) and 650 Postgraduate Researchers (PGRs).

[3] Research Excellence Framework (REF), Unit of Assessment (UOA). The REF is a UK Government process for assessing the excellence of research in higher education institutions: www.ref.ac.uk/ (Accessed 19/03/14). There are different UOAs by discipline.

[4] Research Assessment Exercise is the preceding UK process to the REF: www.rae.ac.uk/ (Accessed 19/03/14).

[5] Post-92s – UK institutions originally termed polytechnics, which were given university status by the 'Further and Higher Education Act' (1992) or subsequently.

[6] By size of student population: www.hesa.ac.uk/dox/dataTables/studentsAndQualifiers/download/institution1112.xls (Accessed 19/03/14).

[7] Our Vision section of the draft 'University Strategy for 2014 Onwards'.

[8] Roberts' – Following a UK Government report by Professor Sir Gareth Roberts in 2002, the UK Research Councils invested significant funding in institutions to support the development of postgraduate researchers and subsequently early career researchers. Funding levels were dependent upon the headcount of UK research council-funded researchers at respective institutions, leading to variation in the funding levels per institution. Funding by this method ended in 2011. http://webarchive.nationalarchives.gov.uk/+/http://www.hm-treasury.gov.uk/set_for_success.htm (Accessed 19/03/14).

The overarching aims of this researcher development work were clearly defined at the outset; they are to:

- Support the creation of more capable and confident researchers, helping increase: i) the quality of research outputs, ii) research grant and contract income, iii) the impact of research; and thereby contribute to the University's Research Excellence Framework 2020 submission

- Provide development that helps facilitate career satisfaction, as measured through Careers in Research Online Survey (CROS)[9] and the Employee Opinion Survey (EOS)[10] aiding the retention of the best researchers

- Create a development programme that can be marketed in recruitment activities to promote Sheffield Hallam as a progressive and supportive employer of research staff, to help attract excellent researchers to the University.

Methodology: producing a baseline

It was decided that a baseline position should be established around the perceptions and capabilities of researchers, the challenges they face and their development needs, from both an organisational and an individual perspective. This would act as a reference point ahead of developing activity further and in line with the UK sector evaluation of impact methodology.[11]

The Researcher Development Adviser conducted an orientation and scoping exercise during spring and summer 2013, identifying specific challenges, the needs of research centres and their researchers, and mapping existing development provision. This involved nearly forty one-to-one meetings with heads of research centres, key stakeholders and other providers of development across the University. In the baseline report the views of individuals were anonymised, although broader subject areas and their particular characteristics were at times explicitly referred to.

In addition, between March and May 2013 the CROS national survey was undertaken, for the first time, to collect the views of early career research staff. This survey permitted direct benchmarking against post-92 competitor institutions, as well as all UK universities. The response rate to this from Sheffield Hallam researchers was 54%, so the data produced was particularly valuable. Three other surveys carried out among Sheffield Hallam research staff were also considered: an internal EOS (September 2011), Loughborough University's Straight Talking Survey (Summer 2010)[12], and the University and College Union's (UCU)[13] Researcher Survey (May 2009).

While this research was not robust in its nature, the mix of qualitative and quantitative data, and input from a broad range of colleagues, was intended to give this initial evaluation a solid evidence base.

This base-lining process served to draw out several key themes and issues around which the views of those across the institution, and at various levels within it, seemed to coalesce. These key inputs, together with the professional assessment of the Researcher Development Adviser, led to the development of a number of priorities to be addressed and recommendations for action. This is intended to form a roadmap for researcher development work for the next three years.

Themes: challenges

Commercial pressures

In many disciplines at the University, research undertaken is contract research, rather than grant funded research. As research is typically funder-led, research outputs are often reports or products (knowledge transfer). Researchers routinely have little time built in to write up findings as academic papers, as they move straight onto the next project to keep income flowing. The motivation to produce academic outputs often comes from the individual, rather than being funder or corporate driven. Where under-publishing exists, it is seen to result from issues of capacity, rather than capability.

In some cases there can be commercial restrictions on use of the data or findings, especially where the research is privately, rather than publicly, funded.

Research is often managed in teams as projects, with researchers not always involved in the whole project lifecycle. Early career researchers can end up concentrating on just the fieldwork, and are not necessarily involved in the bidding and dissemination processes. Individual contributions within the team are not always easily identifiable.

In the most commercially-orientated areas, where the bottom line is key, longer-term nurturing of junior researchers is of secondary importance. However, being at the sharp end gives researchers useful transferable business skills. In contrast to the RCUK/QR model[14], the commercial world of competitive tenders and having to manage multiple projects, produces particularly agile and employable researchers.

Recognition and progression

As is common in teaching-led universities, researchers at Sheffield Hallam University are a minority group. In some areas they are very detached, both intellectually and physically, from teaching departments. Researchers can feel undervalued within the institution compared to those on teaching contracts. This is the reverse of what tends to be reported in research-led institutions.

It is widely felt that there is no clear progression pathway from researcher to professor. There is no routine senior lecturer equivalent or formalised career structure above grade 8.

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[9] Careers in Research Online Survey – a biennial sector-wide UK research staff survey: www.vitae.ac.uk/impact-and-evaluation/cros (Accessed 19/03/14).

[10] a triennial internal staff survey

[11] T. Bromley, J. Metcalfe and C. Park, The Rugby Team Impact Framework (CRAC, 2008) www2.le.ac.uk/departments/gradschool/about/external/publications/impact-framework.pdf (Accessed 19/03/14).

[12] J. Arnold, L. Cohen and R. Harpley, Straight Talking: The Role of Non-Specialist Advice and Networking in Career Conversations for Researchers (CRAC, 2011) www.vitae.ac.uk/vitae-publications/reports/straight-talking-vitae-march-2012.pdf (Accessed 19/03/14). Register to access.

[13] www.ucu.org.uk/ (Accessed 19/03/14).

[14] The UK Government provides funding for research via a dual support system where public money is delivered either through the Research Councils or the Higher Education Funding Council for England (HEFCE). Research Councils provide research grants for specific projects and programmes, which are awarded on the basis of applications made by individual researchers and which are subject to a competitive peer review process. HEFCE provides block grant funding to support the research infrastructure and enable institutions to undertake research of their choosing. HEFCE support for research (Quality Related or QR funding) is distributed on the basis of the excellence in particular disciplines within higher education institutions, based on the results of the REF.

The reader role is not well understood, widespread or transparent. Researchers do not have automatic career progression, unlike teaching staff, and instead achieve progression through the less obvious re-grading route. Again this is the reverse of what is often found in research-led institutions.

In the 2013 CROS survey, 50.8% of researchers disagreed or strongly disagreed that they had opportunities for promotion and progression, compared with 44.6% for post-92s and 47.4% for all UK universities.

93% of applicants for a new female career progression mentoring scheme were research-active, though this group makes up just 28% of the overall academic population. This is another indicator that progression is a particularly pressing concern for researchers.

Brain drain

This lack of clear progression pathways means that there is a struggle to retain the brightest researchers. One particular research centre reported that their REF return will be notably less than their 2008 RAE due to significant numbers of research-active staff leaving, as distinct from the issue of a higher quality threshold. It was noted that in particular newly appointed research-active staff can quickly move on to other institutions for more supportive research environments.

As well as research-active staff leaving the University, others can become inactive within it. The obvious path for those seeking to progress in the institution is the teaching route. There is a perception that researchers are less well paid than teachers – one grade below for comparable positions – so the individual rewards are perceived to be greater. Teaching is the University's main business and revenue generator, so there is also political pressure and a corporate driver away from research. Subject group leaders in particular can be seen as being opposed to staff maintaining a research profile. For researchers not aligned to research centres, teaching is tightly work planned, whereas research is allocated 23 days a year under the banner of 'self-managed time'. A combination of these factors means that research activity in many new staff soon diminishes.

Research 'outreach'

UK Government market reforms are having a big impact on teaching in parts of the University. Healthcare teaching contracts are now being put out to tender, so universities find themselves in competition with trusts. Similarly the School Direct Training Programme provides an alternative to university-based teacher training in education schools. To remain the premier provider of these programmes, universities will need to articulate their unique selling point – that they generate, as well as impart, knowledge. This means being explicit about how research informs teaching and how research-led teaching contributes to the student experience. These developments intensify the established concern that universities which do not maintain and promote their research profile, struggle to recruit (especially international) students.

Within teaching-led institutions there can be challenges to embedding research in the curriculum. Firstly there is confusion over what research-led teaching actually is. It seems to be commonly confused with pedagogy, rather than the teaching of a topic that the teacher has researched or is researching.

At Sheffield Hallam University, teaching and research do not necessarily overlap within disciplines, such as in the less-established research groups that have been orientated towards other REF UOA areas.

With 72% of academic staff not research-active, there is a large group in need of incentivising and support to engage in research. In a number of areas there does however seem to be an appetite for encouraging the latent research talent of teaching staff.

In terms of barriers, those outside of the research community report that they can find it inaccessible. They sometimes report snobbery around research, and find research centres insular. They also seem to lack confidence around some of the basic principles and there appears to be a need for more guidance on introductory topics such as: what is research, demystifying research, turning ideas into research, getting a project off the ground, getting funding for ideas, what 2*, 3* and 4*[15] research looks like etc. It is felt that many want to be research-active, but are overwhelmed by the teaching ethos and deterred by the perceived impenetrability of academic research.

There is a perception that most research resources at the moment support high fliers (3* and 4* researchers and early career researchers on clear trajectories to becoming them), rather than beginner or more casual researchers. Significant institutional investment would be needed to support and nurture these latter groups for large-scale research capacity building to occur; although more targeted talent-spotting would be a more efficient approach.

Themes: opportunities

Career satisfaction

According to CROS 2013 data, the University has an exceptionally high proportion of junior researchers on permanent contracts: 70.7%, compared to 38.8% for post-92s and 21.4% for all UK universities. This is probably the result of a tendency to undertake multiple projects and tendering, instead of taking up RCUK or QR funding, which requires research centres to have a responsive 'in-house' resource, as opposed to recruiting staff on a project-by-project basis. Researchers tend to have long careers within the institution: 36.7% have been at Sheffield Hallam University more than 10 years, compared with 26.8% at post-92s and 24.5% at all universities. This indicates that once they are established as research staff, there is a high retention rate and low turnover of researchers.

The Straight Talking survey was a research project conducted by Loughborough University, undertaken in 2010, published by Vitae in 2012, and completed by 53 Sheffield Hallam researchers[16]. Questions about level of satisfaction with or optimism concerning their career (calculated by averaging four questions on this subject) produced particularly notable results. Sheffield Hallam's average was 79%, compared with 56% for all participating institutions. The Loughborough researchers stated that Sheffield Hallam 'was indeed something of an outlier', 'statistically significantly higher' and 'did stand out from the crowd'. The explanation for this pot forward by the researchers was that it was 'down to job security and... variety of work over time'. Those on permanent contracts feel more valued, and their work/development is clearly cumulative, rather than discrete.

15 '2*, 3*, 4*' is terminology used in the UK Government Research Excellence Framework with 4* being the highest rated research and having 'Quality that is world-leading in terms of originality, significance and rigour'. http://www.ref.ac.uk/panels/assessmentcriteriaandleveldefinitions/ (Accessed 01/07/14)

16 J. Arnold, L. Cohen and R. Harpley, Straight Talking: The Role of Non-Specialist Advice and Networking in Career Conversations for Researchers (CRAC, 2011) www.vitae.ac.uk/vitae-publications/reports/straight-talking-vitae-march-2012.pdf (Accessed 19/03/14). Register to access.

The University's Employee Opinion Survey (September 2011) found that, when comparing the responses of the research population to those of the wider staff and academic population, research staff appear to be generally more positive about their work: in particular, their job, using their initiative in their job, and being encouraged to be innovative and creative.

Similarly, UCU's Researcher Survey (May 2009) noted that 'a clear majority (75%) are fairly or entirely happy with their current job'.

ii) The researchers

The most important asset a university has is its staff. In comparison with those at other universities, Sheffield Hallam researchers seem considerably more experienced in the range of activities they have undertaken (CROS questions 23-26 – see Appendix 1). They are shown to have more experience in collaborating with external organisations, cross-disciplinary work, managing budgets, project management, grant writing and engagement with policymakers. knowledge exchange and public engagement. They are only less experienced at working with colleagues abroad and producing publications.

Sheffield Hallam researchers have undertaken more training in most areas (CROS question 19 – see Appendix 1). Sheffield Hallam researchers also have considerably more interest in Continuing Professional Development (CPD) in most areas in comparison with their peers. There is appetite for (more than 50% would like to undertake) training in most areas, showing a strong commitment to CPD.

As well as being experienced, agile and engaged, researchers at Sheffield Hallam are also highly capable. Although REF-able outputs may not be plentiful in all areas, research contracts are successfully completed and research centres are reputable and competitive in their fields.

iii) Professionalised postgraduate researchers

Sheffield Hallam University has an inclusive research culture, with an ever-decreasing differentiation between postgraduate researchers and early career researchers. Postgraduate researchers are recognised as contributing researchers and part of the lifeblood of the University's research community.

A relatively high proportion of postgraduate researchers are either staff and/or mature candidates. This again blurs the staff-postgraduate distinction and adds to the richness of the postgraduate researcher community.

Many postgraduate researchers, especially those based in research centres, do applied research on live projects and contracts. This focus on real world needs and delivering tangible benefits ensures that they are highly employable.

The University's extensive experience of undergraduate work placements and its industry contacts mean that there is the opportunity to become a sector leader in providing PhD placements, an emergent theme stemming from the recent Wilson Review[17]. Similarly the University is favourably positioned with another opportunity for growth by providing CPD for staff from industrial partners in the form of postgraduate study.

Recommendations

i) Researcher development programme

A development programme for researchers entitled the Sheffield Hallam Researcher Development (SHaRD) Programme has been established. This consists of a suite of development offerings, structured into 25 themes under five main sections: Research Essentials, Research Skills, Communicating Research, Managing Research and Career Management.[18] The programme outline was drawn up and honed during discussions with heads of research centres regarding the development needs of their researchers and their centres. This process of co-creation, as opposed to the introduction of an 'off-the-shelf' programme, was intended to foster a sense of collective ownership. SHaRD is informed by Vitae's Researcher Development Framework[19], but has been designed very much in response to the specific culture and environment of Sheffield Hallam University. This includes particular focus on writing for publication and publishing strategies with a view to increasing REF-able outputs, on commercial awareness to equip researchers for contract research, and on essentials for those relatively new to researching. The consultation process demonstrated widespread support for SHaRD.

The programme is needs based, individually tailored (rather than linear) and linked to discussions held with line managers and at appraisals regarding career trajectory and development needs analysis. Individual researchers can focus solely on the aspects to further their professional growth and improve effectiveness within their units. Different elements will be more relevant to different parts of the University: it is purposely flexible to reflect the diversity. The majority of sessions are cross-disciplinary to enhance the research community, though care has been taken to ensure that sessions are relevant to all and are not seen as too broad, for example through multiple contributors from different subject areas.

SHaRD has been co-ordinated and delivered by the Researcher Development Adviser, with input from expert practitioners from within the University, and occasional externally, as determined by the topic. Some elements, in particular Teaching, Personal Effectiveness and Management, are simply signposting relevant development provided by other directorates (Learning and Teaching Services, and HR), and have been included to present a coherent and integrated package.

The sessions and other forms of development have been designed under each theme to create a portfolio of courses. In some cases several different sessions exist under each theme, for example Bid Writing is delivered in funder-specific format (RCUK, European Union, charities, government etc.), whereas Budget Management includes both general managing of research budgets and specific budget management using University systems.

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[17] The Wilson Review was a UK Government report by Professor Sir Tim Wilson in 2012, which recommended that all postgraduate research students be given the opportunity to undertake a structured, university-approved, work placement. This mirrors the recommendations for undergraduate students first made in the Dearing Report in 1997. www.gov.uk/government/uploads/system/uploads/attachment_data/file/32383/12-610-wilson-review-business-university-collaboration.pdf (Accessed 19/03/14).

[18] http://shardprogramme.wordpress.com/ and http://shardprogramme.wordpress.com/shard/. (Accessed 01/07/14)

[19] www.vitae.ac.uk/rdf (Accessed 19/03/14).

As well as increasing the development opportunities offered to researchers, existing provision has been rationalised with the intention of making it more strategic. Co-ordinated marketing and communications is making development more accessible. SHaRD is also intended to be used as a recruitment tool, to demonstrate externally to potential future researchers the University's commitment to developing its staff.

SHaRD has been launched during the 2013/14 academic session,. Courses will be rolled-out incrementally for up to two or three years, with prioritisation in areas where need is perceived to be strongest.

ii) Research environment

Career development of researchers will be strategically attended to, utilising the frameworks of the Researcher Concordat and HR Excellence in Research Award[20]. A Researcher Concordat Sub-Committee (RCSC) has been established to support and guide the work in this area, as well as being the custodian of the HR Excellence in Research Award and Action Plan[21].

Advanced proposals are in place regarding the introduction of Researcher Concordat Co-ordinators: eight or nine broadly REF UOA aligned 0.1 FTE roles[22], to provide local leadership for developing the careers of researchers.

A key aspect of the HR Excellence in Research Action Plan is the HR Career Pathways project, which will look at introducing a framework that recognises and assists researchers at all stages of their career. Areas that potentially fall within the scope of this project are: research career structures and progression strategies, establishing and utilising the post of reader, and buy-out time systems for research-active staff on teaching contracts.

Other environment initiatives will include building research communities through cross-institutional events (SHaRD researcher workshops) and increased efforts to connect similar research practices. For example a common interest was expressed by research centres in three different faculties regarding a quantitative researchers' network, an area where there is a university-wide deficit.

iii) Integrated approach to academic CPD

The integration and connectivity of academic staff development across the institution is being facilitated through an Academic CPD Portal[23]. This help raise the profile of researcher development, giving it equal footing with teacher development and HR's personal and staff development. The cross-signposting communicates the development opportunities and support available to those in teaching departments interested in undertaking research.

iv) Capacity building

Research capacity can be built either by recruiting researchers who are already delivering high-quality outputs, or by developing those with the potential to do so – the latter being the more cost effective, sustainable and preferable method. However where there is only a small or emerging research community, such as in a post-92 institution, developing researchers can be particularly challenging, as there is not necessarily a wealth of established successful researchers for them to interact with and learn from.

Due to the structure of the research centres, the University is 'top light' on researchers from a development, though not necessarily a delivery, point of view. Perhaps linked to the restricted pathways to professor issue, there is a scarcity of research mentors for early career staff. Allocating time for senior researchers (professors and readers) to mentor junior staff, such as the mentoring scheme utilised in one research centre, is one way to increase support; although this relies on there being sufficient number of senior researchers, which is not always the case.

Similarly there is a capacity-building related barrier at the next level down, where there is a significant shortage of capable PGR supervisors in a number of areas, whilst overcapacity and lack of opportunity to supervise is prevalent in other areas. The push for staff to complete postgraduate studies and the rolling-out of supervisor training should start to address this over the next 3-5 years.

Initial progress

A series of researcher workshops have run and are planned through 2013-14, including sessions on Open Access Publishing (May 2013), Horizon 2020 European Funding (October 2013), Enterprising Researchers (October 2013), Research Integrity (November 2013), Introduction to Research (March 2014), Publication Strategies (May 2014), Research Impact (May 2014) and Social Media for Researchers (June 2014). These have generally booked out quickly, with encouraging turnout.

The Researcher Concordat Sub-Committee has been established to support and guide this work, as well as being the custodian of the HR Excellence in Research Award and Action Plan. The Academic CPD working group has been set up and is starting to produce outputs such as the Academic CPD web portal. The RCSC's focus is on enhancing the research environment, whilst the Academic CPD group integrates researcher development with other University provision. The respective chairs of the RCSC and Academic CPD group sit on both committees to ensure they are complementary and 'joined up'. Both groups also report to the main Research and Innovation Committee.

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[20] 'Concordat to Support the Career Development of Researchers' (2008) www.vitae.ac.uk/policy/vitae-concordat-vitae-2011.pdf (Accessed 19-03-14). The HR Excellence in Research Award is the European Commission's quality assurance mark, recognising institutions' commitment to implementing the 'European Charter for Researchers and Code of Conduct for the Recruitment of Researchers' (2005): http://ec.europa.eu/euraxess/index.cfm/rights/index?CFID=2615813&CFTOKEN=68041574b09cf6a0-924A6C0D-EF84-B842-C9087FED8F1AE1BA&jsessionid=b102f00cc820979c518017373d4b5e2d7a57TR (Accessed 19-03-14).

[21] The 'direction of travel' approach of the HR Excellence in Research Award requires institutions to set their own action plans, subject to independent review. Progress against action plans are reviewed later externally. Sheffield Hallam's action plan can be found at: www.shu.ac.uk/research/downloads/concordat-responce-action-plan.pdf

[22] Full-Time Equivalent – e.g. a member of staff working only two days a week is 0.4 FTE.

[23] www.shu.ac.uk/research/documents/AcademicCPDLeaflet.pdf. (Accessed 01/17/14)

Structural matters regarding development needs analysis, promoting development and recording CPD are being addressed, including the introduction of the RDF Planner[24], a researcher development web presence[25], an event booking system and Epigeum online courses[26].

Conclusion: from baseline to impact

The measures of impact were determined and clearly set out at the start of the project (detailed in the Aims section above).

Ongoing evaluation of the researcher development programme will be undertaken through a Kirkpatrick/return on expectations framework, in particular follow-up investigation probing the influence of development on the thinking and practices of individuals[27]. The specific heritage and good practices of researcher development evaluation, such as the Rugby Team Impact Framework, will be considered and incorporated where appropriate[28]. Birdi's TOTADO model is also of interest and will similarly inform the development of evaluation mechanisms and reporting[29].

Evaluation of broader research environment-related work will be outcome-focused, with the quality of research outputs, the career satisfaction of researchers and the reputation of the University as an employer of researchers being the three key 'measures that matter'. The first of these can be independently measured through research income and REF assessment, the second through repetition of satisfaction surveys, while the latter is less tangible. It is important to recognise that researcher development is only one of a number of factors relevant to enhancing the research environment, consequently it can only contribute to achieving these institutional objectives in combination with other related endeavours.

24 www.rdfplanner.net (Accessed 19-03-14).

25 http://shardprogramme.wordpress.com/.

26 Epigeum are an eLearning company who collaborate with a wide range of universities to produce online skills training courses to support research, and learning and teaching activities. Sheffield Hallam University has been an active collaborator and embeds the Research Skills, Research Integrity, Research Leadership, Statistical Methods for Research and Supervising Doctoral Studies suites into its researcher development programme: www.epigeum.com/ (Accessed 19-03-14).

27 D. L. Kirkpatrick, Evaluating Training Programs: The Four Levels (San Francisco, 1994).

28 Bromley, Metcalfe and Park, The Rugby Team Impact Framework; T. Bromley, The Rugby Team Impact Framework: One Year On (CRAC, 2009) www2.le.ac.uk/departments/gradschool/about/external/publications/one-year-on.pdf; T. Bromley, The Impact of Researcher Training and Development: Two Years On (CRAC, 2010) www.vitae.ac.uk/impact-and-evaluation/ieg-development-report-vitae-2010.pdf/@@download/file/IEG-Development-Report-Vitae-2010.pdf; T. Bromley and J. Metcalfe, The Impact Framework 2012: Revisiting the Rugby Team Impact Framework (CRAC, 2012) www.vitae.ac.uk/vitae-publications/reports/ieg-report-2012.pdf (all Accessed 19-03-14). Register to access

29 K. Birdi, 'The Taxonomy of Training and Development Outcomes (TOTADO): A New Model of Training Evaluation' (2010)

Appendix 1: CROS questions

19.	In which areas have you undertaken, or would you like to undertake, training and other continuing professional development (CPD) activities?
19.a.	Career management
19.b.	Collaboration and teamworking
19.c.	Communication and dissemination
19.d.	Equality and diversity
19.e.	Ethical research conduct
19.f.	Knowledge exchange
19.g.	Leadership and management
19.h.	Personal effectiveness
19.i.	Public engagement
19.j.	Research impact
19.k.	Research skills and techniques
19.l.	Supervision of doctoral/masters students
19.m.	Teaching or lecturing

23-26. Which of the following have you done, or would you like to do, as part of your current role?

23.	Working with others
23.a.	Collaborate with colleagues outside the UK
23.b.	Collaborate in research with external organisations
23.c.	Mentor and support other researchers
23.d.	Supervise undergraduate or postgraduate research projects
23.e.	Undertake an internship/placement outside higher education research
23.f.	Work as part of a cross-disciplinary team
24.	Research and financial management
24.a.	Manage a budget
24.b.	Plan and manage a project
24.c.	Write a grant/funding proposal
25.	Engagement and impact
25.a.	Engage with policymakers and end users
25.b.	Knowledge exchange
25.c.	Participate in public engagement activities
25.d.	Teach or lecture
26.	Communication and dissemination
26.a.	Present work at a conference orally
26.b.	Write up research for publication as first author

Making an impact? Realising the potential of postdoctoral health professional researchers in higher education institutions in the United Kingdom

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Introduction

This discussion paper will offer a brief insight into the historical context of research in the health professions in higher education institutions (HEIs) as a precursor to understanding some of the contemporary challenges for the health professional postdoctoral researcher. The contents of a workshop delivered by the authors at the Vitae Researcher Development International Conference in 2013 will be described alongside a critical examination of possible salutary interventions to address some of the challenges identified. To conclude, a framework to evaluate and measure the impact of the proposed interventions will be discussed.

Background

Lecturers in nursing, midwifery and other allied health professions have a relatively recent history of working within HEIs. Prior to the early 1990s health professional educators were hospital based 'teachers', training students for their chosen health career. In 1986 the United Kingdom Central Council review of nurse education was the catalyst for change for the health professions, recommending that to increase the credibility of programmes, nursing should be reassigned to HEIs. As a result, the 'teacher' underwent a transition period to become a lecturer. It was necessary to undertake a period of self-development to fit this new role. Over time health lecturers developed from Bachelors to Masters level qualification and, in some cases, through to doctoral level in order to integrate into the academic environment.

As the number of doctoral-level health professional educators increases, so does the scope to make a significant contribution to research. Health science research tends to be located in the 'applied research' arena, characterised by being problem oriented and designed to present the solution to an existing problem in clinical practice. Health research is located in the 'health research triangle' as described by the World Health Organization (2001). This involves categorising research into three areas; biomedical research (pure research at cellular level), health services research (environmental factors which promote changes at cellular level) and behavioural research (concerned with how people interact with society, beliefs, attitudes and practices of the individual). This categorisation not only highlights the relationship but also the differences between the various types of health science research and their unique contribution to the discipline.

Challenges for the postdoctoral health professional researcher within HEIs

Currently health lecturers working within HEIs continue to work predominantly in a culture of teaching, and income is generated by preparing health care students to register within the health professions. It can be argued that for health lecturers, the concept of generating income through engaging in research has remained secondary to their teaching role, with time constraints hindering this aspect of the academic role. Despite this, there is an expectation that health lecturers will complete their doctoral studies and develop into independent, autonomous researchers, undertaking high impact research to inform teaching and health care.

Striking a balance between a teaching and research career can be challenging and a review of the literature suggested two main difficulties influencing research capacity for nursing lecturers (Segrott et al 2006); firstly, material and organisational constraints and secondly the changing role and expectations of nursing lecturers. To build research capacity, Segrott et al (2006) discuss the importance of building an infrastructure which supports individuals undertaking research activity, as well as a supportive management structure that encourages lecturers to engage in research activity. Arguably these issues continue to pose a significant challenge to postdoctoral health professional researchers employed as lecturers in HEIs.

High impact research within HEIs has traditionally involved citation analysis; assessing how frequently an individual publication is cited in future work (Sarli et al 2010). However, recently the definition of impact has widened, and new interpretations are being used within the current Research Excellence Framework (REF 2014) to assess the allocation of research funding to universities (Scoble et al 2009). In the health professions, there is a greater emphasis on research that has a wide socio-economic impact (Smith 2010). This could include benefits to the economy from the commercial development of findings or cost savings to the National Health Service (NHS) of a new intervention. It could also mean the intangible cost to the NHS of the health benefits of the research (Buxton et al 2004). It is important that the health professional lecturer embraces the idea of impact in order to contribute to the Research Excellence Framework (REF)[30]. However, due to the emphasis on teaching, some schools of health have relatively minimal high impact research to submit to REF 2014.

In addition, the NHS embraces the notion of high quality evidence informing practice with the National Institution for Health Research (NIHR) funding high impact research, which supports decision making in the NHS by professionals, policy makers and patients (NIHR 2013). The National Institute for Health and Clinical Excellence (NICE) guidelines are written in response to the best available research evidence (NICE 2013). Likewise the Cochrane library[31] develops reviews based on high quality evidence, which informs policy and practice. Health research needs to be undertaken to develop this evidence, and the Darzi report (2008) recommends that universities work in partnership with the NHS to deliver research to directly influence clinical outcomes for patients. The need for an evidence base to inform practice has been highlighted in the recent Francis report; the public enquiry into high mortality rates in Mid Staffordshire NHS Trust (Francis 2013).

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[30] REF is the UK Government assessment of research excellence in UK Higher Education Institutions http://www.ref.ac.uk/ (Accessed 20/3/14)

[31] Cochrane (2013) The Cochrane Library http://www.thecochranelibrary.com/view/0/index.html accessed 19th November 2013

Increasingly it is contested that the health professional lecturer needs to be in a position to contribute high impact research to the wider political agenda. As indicated, current health related policy documents tend to allude to the promotion and adoption of evidence-based practice. Being involved in research either as an investigator or as a consumer is considered to be a central tenet in engaging health practitioners and academics with evidence-based practice. Health professional lecturers involved in the generation of empirical evidence are more likely to appreciate the importance and usefulness of research, and therefore promote it with clinical practice partners. However, whilst they remain entrenched within a teaching culture and the heavy workload commitments that accompany this, they are unable to commit to their wider academic role as a researcher. Consequently, it is essential that schools of health within higher education institutions develop a culture of research not only to inform teaching practice but also to have a wider impact and inform the future funding of research through the REF, as well as the larger political agenda.

Addressing the challenges

The authors, both lecturers and postdoctoral researchers based within a school of health in an HEI, recognised through peer discussion, a need for the continued development of postdoctoral staff. The main driver for these discussions was that upon completion of a doctorate, health professional lecturers tend to be expected to resume their former teaching roles rather than pursuing a research career trajectory. As a result, they are unable to establish themselves as serious contenders in the health sciences research arena through an impressive publication profile and the acquisition of research income. This common scenario can be frustrating for the individuals concerned, and is considered by some as an economically unsustainable exercise, when considering the costs of investing in doctoral studies and the lack of return through income generated through research as a postdoctoral researcher.

To address this issue, a novel, 'grass roots' approach to developing postdoctoral research staff was implemented. This made use of 'Innovation Cell Methodology', which involved bringing six people together in order to create a solution to the identified problem. Over a six-month period, a small team of staff, including postdoctoral lecturers, an accountant, manager and administrator, met with a facilitator and developed a postdoctoral training programme, mapped to the Vitae Researcher Development Framework[32] to be used within the school. They wrote a business case which they presented to senior management. The aim of the programme was to build an infrastructure of research support and training opportunities for postdoctoral lecturers to increase the school's research capital, capacity and capability. To remain sustainable, this programme needed to develop postdoctoral researchers who can subsequently work with future programme applicants and also nurture research opportunities with other health lecturers and practitioners. The Leadership lens within the Researcher Development Framework[33] will be employed as a means of developing future research leaders to equip them with the skills required to develop other aspirational researchers.

The business case recommended funding to support a rolling programme of postdoctoral research fellowship posts. These would be within the School of Health Studies, involve annual recruitment and be of four years' duration. The posts would be allocated on a competitive basis, following the submission of an appropriate research proposal, linked to the school research themes, shortlisting and a selection interview. Year one of the programme would involve the posts being funded to backfill staff for two days a week, to facilitate access to training and activities required to develop individuals' research skills, such as grant finding and writing and gaining ethical approval. An individual or research team would be identified to mentor the research fellow, working with them to achieve appropriate targets, which would be mapped against the Vitae Researcher Development Framework. At the end of year one, research fellows would return to their substantive posts, with one day per week for scholarly activity. For years two to four, they would continue to develop their research pathways with ongoing support and mentoring from established researchers within the school and through performance review processes. At the end of the programme, the research fellow would be expected to have completed publications and generated income through grant capture.

The Vitae Conference Workshop

The methodology and results from this work were presented at the Vitae Researcher Development International Conference in 2013. The title of the workshop was 'A novel approach to enabling postdoctoral research staff to become successful, autonomous and independent researchers within 5 years of doctoral completion'.

The aims of the workshop were to discuss postdoctoral researcher development, to explore practical ways to develop postdoctoral researchers in a variety of work places and to offer a brief overview of Innovation Cell Methodology as an example of the approach taken in this context. There were thirty participants from a variety of professions including languages, historians, researchers and research managers. Participants were divided into subgroups to consider how they would design, deliver and evaluate a postdoctoral training programme in their places of work, who it would target, why and where and when it would be implemented.

Although the subgroups consisted of a variety of professionals, the issues and difficulties raised were remarkably similar. The practice of appointing researchers on fixed-term contracts was considered a significant challenge to furthering researchers' careers. This was particularly evident in terms of continued professional development as there seemed to be less incentive to invest in researchers who may be working within an institution for short periods of time. Arguably, postdoctoral training for early career researcher on a fixed-term contract is as important as it is for staff on a permanent contract, with an emphasis on the need for curriculum vitae development as a means to secure future employment. The Vitae Researcher Development Framework was seen as an excellent tool for all individuals to utilise to address their training needs.

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[32]   www.vitae.ac.uk/rdf (accessed 20/03/14)
[33]   www.vitae.ac.uk/rdflenses

A framework for evaluation and impact

It is evident that measuring the impact of any research related activity is important, but at the same time may prove to be complex. This is particularly pertinent in health science research, where most of the funding is sought for 'applied' studies. The implication is that the immediate impact of the intervention may not be realised until way into the future. Despite this, to assess sustainability, the postdoctoral training programme need to facilitate its research fellows to develop skills to be able to factor in impact and evaluation into the core research activity.

The intention is to utilise the Rugby Team Impact Framework to measure the impact of the proposed postdoctoral development programme. This has been specifically designed to enable evaluation of training and development of researchers by measuring impact for different stakeholders, including the Research Councils (Bromley et. al. 2008). It aims to engage HEIs in evaluation to build a comprehensive evidence base to present to stakeholders, and provides examples of how such evaluation can be undertaken. The framework guides the user through a pathway, examining the training and development activities that have been facilitated. The pathway consists of four levels: developing the infrastructure to facilitate training and development activities, the reaction of the staff to the activities and their learning from this, subsequent changes in behaviour as a result of the learning and the outcomes in terms of research quality and output. This will be implemented in a pragmatic way depending on the nature of the research and the potential time lapse of 'applying' findings in the real world.

Conclusion

This paper has discussed the historical context of research in schools of health studies in HEIs alongside some of the contemporary challenges for the health professional postdoctoral researcher. It included outlining a novel initiative designed to address some of these challenges, which may have relevance to other health science researchers in higher education institutions. Alongside formal metrics to measure individual researchers' success on this programme, such as research income and publications, the Rugby Team Impact Framework will also be used as a formal method to evaluate the implementation and impact of the proposed postdoctoral development programme.

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Using research-based learning to enhance doctoral skills development

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Introduction

This paper discusses the rationale for the design and delivery of an innovative new framework for the delivery of development activities to doctoral candidates at the University of the West of England (UWE). The module, 'Research in Contemporary Context', aims to enhance their experience of personal and professional skills development in a way that both makes the content relevant to the area of research and facilitates access using online learning tools.

Landscape of researcher development

One of the challenges for researcher developers, especially those working at institutional level, is to meet the needs of all doctoral candidates, taking into account the diversity in mode of study, doctoral type and subject range; at our institution, for example, there is no such thing as a 'typical' doctoral candidate. Across much of the European Higher Education Area, the doctoral policy landscape shaped in recent years by the various stakeholders, both funders of research and regulators of doctoral programmes, has increased the focus on the trained researcher as a product of the doctoral degree and moved away from the written thesis as the sole output (EUA, 2010). Together with the pressure to complete the doctorate in a shorter timeframe than previously, this has led to the part-time mode of doctoral study often being seen as problematic for institutions to support (McCulloch & Stokes, 2008).

This changing landscape is also characterised by a sharp focus on researcher development in terms of normalising the provision and access of personal and professional development activities that are integrated into the doctoral programme (QAA, 2011). Not all supervisors of doctoral candidates welcome this move. Indeed a significant minority view attempts to provide skills development opportunities as counter-productive or a distraction to the normal business of their supervisees making progress on their research. Even for those supervisors and doctoral candidates who welcome development activities, these activities can still be perceived and experienced as separate to their research. Overall, there can frequently be barriers, both perceived and real, to the integration of the development and research activities that doctoral candidates undertake. The recent concentration of many UK Research Council doctoral studentships into Doctoral Training Partnerships (DTPs) or Centres for Doctoral Training (CDTs) is, in part, a response to some of these pressures. We suggest that in the UK this focused doctoral provision has generally been successful in providing enhanced research training but has produced some challenges for the integration of more general personal and professional development opportunities, especially for the many candidates who are not funded through DTPs or CDTs.

Accessibility of development opportunities

Accessibility of skills development opportunities is an important consideration for doctoral candidates regardless of their mode of study or distance from campus. Some of the strategies employed to ameliorate this include running workshops at various timeslots; in the evening, at weekends and as blocks of workshops in the summer months (Hooley et al., 2009). These approaches have met with mixed success at UWE because they still require attendance in person, access to support facilities is reduced and staffing them can be more challenging, which suggests that a reframing of approach is necessary. We decided that the use of new technologies, a Virtual Learning Environment (VLE) and a video conferencing system, combined with established frameworks for work-based learning, could improve the range of ways to interact.

It was decided to build upon an existing technology that has been used widely to facilitate multi-site research collaboration, access grid technology; a suite of hardware, software, and tools to facilitate communication and collaboration over the Internet (Suarez, T. 2007). These room-based systems have the advantage of providing remote participants with an immersive experience through the use of multiple pan/tilt/zoom (PTZ) cameras, high quality audio capture and the ability to share applications with remote participants. Recent developments in software applications to run these systems have simplified the interface for remote participants greatly, enhancing the ability to conduct virtual meetings with many individual remote participants. The software solution in this instance is called Visimeet (IOCOM), a JaNet supported video conferencing solution.

This technology enables workshops to be broadcast to multiple participants and has a recording facility for subsequent playback of sessions.

The pedagogical framework: research-based skills development

Technologically-enhanced access is vital to overcoming some of the barriers to delivery experienced in the current doctoral landscape. The integration of research and development activities is also dependent on a suitable pedagogical framework: technologically-accessed but bolted-together activities, perhaps even reinforcing perceptions of separate activities. In designing our Research In Contemporary Context module our pedagogic inspiration was work-based learning. Experiential learning occurs in many ways in many disciplines but in recent decades increasingly sophisticated models have extended experiential learning to work-based learning that can promote sophisticated interplays of theoretical and practical learning 'acquired in the midst of practice' (Raelin, 1997; Moore & Workman, 2012). The describing of such interplays has contributed not only to recognition of the power of the space 'between work and learning' (Mulcahy, 2011) but also an understanding of the importance of a variety of fora for learning, such as communities of enquirers and action research. It has led to new insights into how work-based learning can be facilitated, especially as regards the timings of the interplay between theory and practice and the role of facilitators and supervisors (Henderson, 2010).

We believe work-based learning can provide a pedagogically suitable framework within which to build integrated delivery of skills development activities for doctoral candidates for three reasons. First, the research that doctoral candidates undertake is, at least in some significant respects, analogous to the work of students undertaking work-based learning – work/research is the primary focus of students' professional energies, and enhancement of it a key aim of the learning/development. Second, work-based learning has often been shown to be important in developing a 'vocational identity' and development activities for doctoral candidates are to a significant degree aimed at developing an individual who has not just written a thesis, but who also regards themself as 'a researcher'. And third, many doctoral candidates are deeply versed in the interplay of theory and practice, so work-based learning provides a framework with which they can easily interact. In fact, many of the professional doctorates that have developed in the last few decades in many parts of the world in some significant respects exemplify the use of work-based learning (Costley & Lester, 2012) and suggest its suitability for development activities at doctoral level. Thus, we set out to evolve 'work-based learning' into 'research-based skills development'.

The Research in Contemporary Context (RCC) module

The RCC module at UWE carries 30 M level credits. Its requirement for credit has been the subject of much discussion but we continue to feel that it helps to provide evidence of positive outcomes from development activities. The RCC module uses the Vitae Researcher Development Framework[34] as a set of professional competencies against which to assess the award of credit. At UWE, for many years we have run work-based learning and professional practice modules that are assessed against sets of professional competencies; for this reason we set up the RCC module using these precedents. The RCC module requires that doctoral candidates take part in 12 workshops on topics relevant to the Vitae RDF. We run six 'Professional Practice' workshops inspired by the RDF specifically for the RCC module. In addition, for many years at UWE we have run a Skills Development programme for doctoral candidates that includes a wide variety of workshops. The RCC module requires those registered on it to participate not only in the six dedicated Professional Practice workshops but also any six workshops of their choice from the Skills Development series.

We manage engagement with the RCC module flexibly in two important ways. First, the use of Visimeet allows flexible patterns of access so that doctoral candidates can access the workshops remotely, including from their 'work-place', i.e. where they are doing their research. This increases the accessibility of the workshops and reinforces the notion of development activities being integrated with those of their 'research-place'. The recording facility of Visimeet not only enables participants to revisit workshops but also makes it possible to engage at any time via recordings. In practice we have found that those taking the module often use mixed modes of engagement, attending via a mixture of actual and virtual, and, for example, engaging in workshops that they can actually only attend part of, because they can complete the rest of the workshop using recordings.

The second way in which we manage engagement flexibly is by providing multiple opportunities for it to occur. This is important both practically and pedagogically. Each candidate who registers on the module has almost three years to complete it. We run professional development and skills development workshops each year and in addition provide repeats in a focused timeslot in our Graduate School Summer Sessions. Those on the RCC module can take part in workshops in any order at a time that complements their research. This is pedagogically useful to 'research-based development', and to individual preferences and circumstances, because it allows for flexibility in the interplay between theory and practice.

The assessment on our RCC module occurs with the submission of a reflective portfolio and a case study. The portfolio includes evidence of reflection on the topics of each of eleven workshops as reflective practice has often been suggested to be vital to the success of work-based learning (Raelin, 2010). The reflective portfolio is complemented by an in-depth case study on the topic of the twelfth workshop. Doctoral candidates choose the workshop topic to be the focus of their case study. The submission of the assignments to a standard that demonstrates development against relevant aspects of the RDF is ultimately what we regard as engagement with the module: we have been able, for example, to move well beyond requiring a particular number of actual attendances in a particular time interval.

The RCC module is available to any doctoral candidate and provides development activities that complement those of the Skills Development Programme. Thus, developing the workshops for RCC gave us the opportunity to address some fundamental topics that discipline-orientated research training or skills development are not often able to cover. For example, one workshop asks simply 'What is a doctorate?'. Candidate feedback shows that in-depth engagement with this topic can be very useful in clarifying what studying for a doctorate means in a contemporary context. Other topics include, for example, fundamentals of epistemology and inter/trans-disciplinary approaches to research, in which the variety of disciplines represented on the module become advantageous in promoting discussion.

Reflection on impact

Now that the first cohort has completed the professional development workshops and candidates are beginning to submit portfolios and case studies for assessment, we have increasing evidence that RCC does breakdown the barriers between research activities and development activities. Our strategy of providing widely accessible workshops that can be engaged in using a variety of means and at a variety of times is starting to be successful in promoting the interplay of theory and practice as it relates to development activities for doctoral candidates. It is also clear that the ongoing developments in work-based learning can be a further source of inspiration for the evolution of our development activities. For example, the candidates on RCC are from a range of disciplines and for them it is frequently a source of insight to become part of an inter-disciplinary community of enquirers. We feel that we can probably develop this aspect of RCC significantly in the future, by both virtual and actual means.

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[34] Vitae Researcher Development Framework available at http://www.vitae.ac.uk/rdf (Accessed 01/07/14)

Conclusions

The flexibility of access and engagement enabled by the use of Visimeet and the 'Research-Based Skills Development' framework has promoted the use of learning practices that are highly beneficial to contemporary doctoral candidates.

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Developing future research leaders: designing early career researcher programmes to enhance track record

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Introduction

The core business of universities is teaching and research, and reputations are based on the quality of these activities. There has been an increasing focus on assessment of research quality and linking government funding allocations to research quality and output. Examples include: Excellence in Research for Australia[35], the Research Excellence Framework in the UK[36], the Performance Based Research Fund Quality Evaluation in New Zealand[37], and the Research Assessment Exercise in Hong Kong[38], with other regions soon to follow, including the United States, Europe, and Africa.

Universities are focusing efforts on building research capacity and capability; investment in building that capacity is essential for them to remain competitive and to access the government funding that is linked to research quality and output. There are two main ways to invest: recruit researchers who can already deliver high quality outputs; and develop individuals who have the potential to deliver high quality outputs. However, developing researchers does not mean teaching them how to do research – it means teaching them how to build a track record which can lead to a research career.

One of the main challenges for younger universities is to develop the research capability of individuals in an emerging research culture. In particular, early career researchers in young universities may need more than just technical skills learned through research training to develop their track records and shape their careers. These are the skills that doctoral research should provide. Rather, ECRs benefit from working in environments that allow them to interact with other successful researchers.

Young universities with an emerging research culture face additional challenges to those universities which are historically privileged. The older and larger universities remain the first choice for many staff and students, and the challenge for young universities is to attract, promote, and retain the best and brightest. To be competitive, young universities need to build their research capacity and early career researchers need to build their research capability.

Our research has found the developmental trajectory for a successful academic research career usually begins with research training, presenting at conferences, and publishing as part of a programme of postgraduate study. This leads to productivity in the early years post doctorate and the beginning of a research track record which attracts funding and graduate students, leading to more publications, a stronger track record, and more funding. Based on these findings, we developed a programme designed to enhance track record. This paper describes the implementation and early outcomes from a pilot development programme for a cohort of early career researchers in one of Australia's younger universities, Central Queensland University.

During the eight-month programme, the cohort attended ten days of workshops, developed a focused career plan and were mentored by a senior researcher. This programme is a short-term investment and the full benefits and outcomes will not be immediately realised. However, there are already indications that it was successful. During the programme the cohort submitted 73 manuscripts for publication, and by the end of the year more than half had been accepted. This is more than double the average number of publications reported per academic staff member at the same university the previous year.

Building research capacity is essential for universities to remain competitive in the current environment, whilst investing in developing the research capability of individuals is vital to the future of young universities with an emerging research culture. A programme of this type can assist early career researchers to build their track record and contribute to enhancing reputation and increasing research outputs and funding for younger universities. This paper describes how we are putting our research into practice to build institutional research capacity at Central Queensland University (Australia) by developing our early career researchers; at the same time it demonstrates the value of researcher professional development on research outputs and careers.

Researching researchers

Conducting research on researchers is a relatively new field of study, having developed over the past few decades, with most of the research and publications coming from a small number of countries that include the United Kingdom, the United States, Canada, South Africa, and Australia.

Writing for publication is one of the most fundamental activities of building an academic career, and as early as the last century literary productivity was found to be dependent on being organised and developing good work habits (Downey 1918). Surveys have since identified that academics who do write, have no more free time and no fewer commitments than their colleagues who do not write. It can be argued that much of what is written is inconsequential. Erkut, for example, found that 'some published papers produce no measureable impact on the discipline, while others have a profound effect on the direction of future research' (2002, p.98). Nonetheless, it is accepted that academic staff who do not write, are unlikely to develop fully as scholars, teachers and researchers (Orne 1981; Weaver 1982), and that PhD postgraduate researchers and academics will in fact be 'unable to succeed in their jobs unless they are productive writers' (Gardiner and Kearns 2012, p.237).

Most of the studies undertaken on researchers have aimed to identify factors most likely to influence research performance (for examples see Wood 1990, Linke 1995, Bazeley 1996, and Williamson and Cable 2003). A study specifically on research leadership in higher education found 'the reality of research productivity is that a small proportion of staff produce most of the work' (Ramsden 1998, p.53). It also identified that 'highly active researchers produce on average more than five times as many publications as the least active group' (Ramsden 1998, p.54). In Australia, ten per cent of the research staff were found to produce more than fifty per cent of the output (Ramsden 1998, p.53).

Being a member of a highly active research group was found to be the best predictor of individual output, and active research departments with a strong culture of research quality and support for staff to develop research careers, produce more publications for their size (Ramsden 1998, p.54). This is supported by another study which found paper and citation credits are highly skewed, with a few 'stars' producing most of the impact (Erkut 2002, p.115).

Although most of the research output is produced by a small percentage of academic staff in universities (Ramsden and Erkut), there has been little research that looks at strategies for individuals to increase their research output, and it has been suggested that 'the study of exceptional or highly productive researchers may yield strategies that help researchers move beyond an average productivity level '(Ito and Brotheridge 2007, p.17).

To gain a better understanding of how leading researchers become research leaders in the higher education context, and how universities can design strategies to attract, retain, develop and promote researchers and research leaders, we carried out a study of research leaders in Australia (Browning, Thompson et al. 2011). Our study involved thirty senior research leaders from organisations which receive government funding. These leaders had achieved professor status and led research teams, and their disciplines were diverse. As expected, they had research doctorates and had secured grants, published and supervised postgraduate students. Some had held senior management roles with responsibility for the research portfolio in public universities, some were leading government funded Cooperative Research Centres (CRCs), and some were leading research institutes and groups (Browning, Thompson et al. 2011).

The data collected on these research leaders came from three sources: a one-hour face-to-face semi-structured interview; information on their research outputs; and their CVs. These research leaders have significant track records. One has published twenty books and another has published more than 250 journal articles. Many have supervised at least twenty postgraduate researchers to completion, with one having supervised eighty. Although they were not asked to provide details on how much funding they have been awarded so far, some volunteered this information, and the amounts mentioned varied from around three million to more than thirty million Australian dollars. Many of these research leaders have excelled in their careers, and some of the awards received include the Nobel Prize, Commander of the British Empire, the Order of Merit of France and the Order of Australia. Some have patents, some have published in Nature, and some have done both. They are exceptional and highly productive researchers, which is consistent with the literature cited above.

Our research has identified seven factors that contributed to the success of these research leaders:

1. having a research doctorate
2. being mentored
3. attending conferences
4. supervising postgraduate students
5. being part of an active research group
6. receiving assistance to develop grant applications
7. receiving support for staff to develop their research careers.

These success factors are consistent with the findings of earlier studies (Wood 1990, Linke 1995, Bazeley 1996, Williamson and Cable 2003). We found that research leaders are highly likely to come from active and supportive research cultures with mentoring support.

They supervise and publish with their research students, participate in collaborative research, and have good international connections and networks. They are passionate about their research and highly motivated. From our data it is reasonable to conclude that leading researchers and research leaders are highly likely to come from the small proportion of researchers identified by Cole , Ramsden, and Erkut as producing most of the work.

For researchers to develop their careers and succeed, the early years post doctorate are critical. Our study found that on average those who have become research leaders gained their first grant around two years after doctorate and they were leading a research team within five. They then spent the next ten years building their research track record and their teams, and became professors within approximately fifteen years of completing their postgraduate studies. From this we can see that the developmental trajectory for a research career is:

PhD publications ➔ postdoctoral research ➔ more publications ➔ track record ➔ grants + students

Grants + students ➔ even more publications ➔ better track record ➔ and so on …

Our research has shown that there is a 'tipping point' in a research career trajectory, around five years post doctorate, where gaining some funding and supervising postgraduate students can lead to more publications and a better track record, which can take them on the path from early career to leading researcher to research leader. Investment in researchers and the research leaders of the future is essential, and institutions need to nurture and invest in their researchers from very early in their careers. They need to provide resources, not only for formal professional development, but also for the other activities essential to developing a track record. Such activities include: presenting at conferences, developing grant applications, supervising postgraduate students and being mentored. The best predictors of individual output are: being part of a research culture that supports supervising and publishing with students, and being a member of a highly active research group with a strong culture of research quality (Ramsden 1998, p.54).

Following the completion of their PhD studies, the current environment for researchers starting their careers in Australia is one of uncertainty, precarious employment and strong competition for funding and resources. The academic workforce in Australia, similar to some other countries, is dominated by babyboomers who were hired during university expansions in the late 1960s. More than half of Australia's academic workforce is more than fifty years old, and more than forty per cent are expected to retire in the next decade (see for example Winchester, Lorenzo et al. 2006; Browning, Thompson et al. 2011; and Gewin 2012). So how can institutions provide effective development and support for early career researchers – the next generation of research leaders?

Almost a decade ago, a desktop audit found that only ten per cent of Australian universities offered development programmes for early career researchers. Now forty per cent have them in place, with nearly three quarters of those having started within the past five years. That is a four-fold increase over the past decade. Programmes range in scope and complexity from a two-day 'boot camp' to more extensive programmes over one to two years. Based on our research, we developed a comprehensive programme to assist early career researchers to develop a focused research career plan and build their track records.

Developing early career researchers in an emerging research culture

Based in regional Australia, Central Queensland University is one of the fastest growing universities in Australia. Established as the Queensland Institute of Technology in Rockhampton in the mid-1960s, the University has around 1,000 staff and 19,000 students across more than ten campuses, institutes and study centres, and studying via distance education. Around a quarter are international students from more than sixty countries.

The inaugural Early Career Researcher Program at Central Queensland University commenced in April 2012 with participants from nine geographic locations around Australia. This was a cohort-based career development programme to address some of the strategic research skills through face-to-face workshops, practical exercises and mentoring, and included the development of a focused research career plan.

Unlike most degree programmes and many researcher development initiatives, this programme is not discipline specific and provides an environment where attention is focused on developing a research career through quality outputs. The first running of the programme included elements which are now standard across similar programmes: face-to-face workshops and a formal mentoring programme. It was different from similar programmes in that participation required a commitment to specific accountabilities in addition to attending at least eight of the ten one-day face-to-face workshops; these were:

- development of a research career plan
- submission of at least two publications
- preparation of a grant application
- participation in a formal mentoring relationship.

The Early Career Researcher Program at Central Queensland University is led by a senior researcher with an impressive track record, Professor Drew Dawson. The manager, Lynette Browning, has a background in organisational development and research management. In the April 2012 inaugural programme, the workshop speakers came from a range of organisations, universities and disciplines. The focus of the first day was to provide the context and set expectations. The Vice Chancellor's session 'Why we are investing in you' was especially appreciated as it demonstrated support from the highest level of the University. The second workshop centred around building a track record and introduced the concept of a focused research career plan. The third workshop looked at publishing and showcased an early career researcher; this session was considered one of the most relevant. The focus of the fourth workshop was on getting funding: it introduced an exercise called 'Dragon's Den' based on a popular television series. In this session participants were given three minutes to pitch an idea for a grant and receive feedback from a panel of 'dragons' with a successful track record in securing competitive research funding. The theme for workshop five was 'Writing better papers for better publication' and included a session on storytelling. Workshop six focused on collaboration across disciplines and international borders to solve real world problems. Engagement with industry and government was the theme of the seventh workshop, with speakers approaching the topic from different perspectives, including input from a venture capitalist and a research leader. Workshop eight covered a range of topics: a mid-career researcher spoke about dealing with rejection of manuscripts; and a senior researcher

addressed the issue of trying to 'have it all'. This resonated with the participants, especially the take-home message that you can have it all – just not all at the same time.

The final two days were held consecutively to conclude the workshop programme and focused on communicating the importance of research, including using media to increase an academic profile. The Vice Chancellor attended the final workshop, this time to hear about the achievements of the cohort and host an informal dinner, again demonstrating senior level support.

All face-to-face workshops were held on Fridays at regular intervals throughout the year because of the travel distances involved, and the cohort met for an informal dinner on the preceding Thursday evenings. At the beginning of each of the workshops from days two to nine, the participants gave a verbal update on their achievements, progress on their research career plans and challenges they may have faced; these sessions generated useful discussion and opportunities for group learning.

Evaluation

Given the typical turnaround times of publications and national grant submissions, a programme of this type is a short-term investment for long-term returns, but a formative evaluation indicates that it has already had an impact on research productivity. The outputs of this programme have been measured in terms of manuscripts submitted for publication and the development of grant applications. Between April and December 2012 the cohort of 14 early career researchers submitted 73 manuscripts for publication including three book chapters, 68 journal articles and two refereed conference papers. Not only is this a significant increase per individual, it is more than double the average number of publications reported per academic staff member at the same university in the previous year. They also developed and submitted 29 grant applications, most for external funding. Many of these early career researchers had significant undergraduate teaching loads while they were participating in this programme.

Overall, the positive feedback on this pilot programme far outweighed the number of suggestions for improvement. Early on we were asked to ensure that we provided women guest speakers, in particular those who have effectively juggled a research career and a family; by the end of the programme almost half of the speakers had been women. Attending ten one-day workshops at various locations required considerable travel and time commitment, so the final two workshops were held consecutively to reduce the travel time at the end of the year. Feedback was provided formally and informally, and formats adjusted accordingly. The participants felt that some sessions did not allow enough time for questions and discussion, so the workshops were refined to reduce the number of guest speakers and allow more time for interaction.

The range and breadth of experience of the guest speakers at the workshops was greatly appreciated. While receiving advice from senior people was a great opportunity, it was considered a refreshing change to hear from speakers who have recent experience, especially from early and mid career researchers, and those with current experience in being awarded competitive grant funding. All the participants found it invaluable to meet regularly with other early career researchers, to learn from their experiences, and to realise that there are others in similar situations facing similar issues.

The 'Dragon's Den' sessions were considered extremely useful, if confronting, and many said that the feedback from their three-minute pitch was the most insightful part of the programme. One participant said, "the discussions regarding the likelihood of success for early career researchers in nationally-competitive grants forced me to re-evaluate the current grant strategy of myself and my team". The group discussions at the beginning of each workshop were considered especially useful, as another participant said, "peer pressure and public shame is a good motivator". The alumni of the 2012 programme are working within their schools and institutes to develop others, participating in follow-up meetings to focus on making their publications count, applying for external grant funding, and building on their research career plans.

This programme was repeated in 2013 with another 16 early career researchers across the same university with some minor changes to the format. Instead of ten one-day workshops, there were five workshops of two days to reduce the amount of travel required. The focus was on writing publications that count for government funding, writing grant applications for external funding, developing a track record, and preparing a focused research career plan to inform performance management discussions. Between May and December 2013, this second cohort of early career researchers submitted 25 grant applications and more than 100 manuscripts for publication. They gave 24 conference presentations, half of those at international conferences, and they supervised 22 postgraduate students.

Conclusion

Our research indicates that there is a 'tipping point' in a research career trajectory approximately five years post doctorate, where gaining some funding and supervising postgraduate students can lead to more publications and a better track record, which can take researchers on the path from early career to leading researcher to research leader. Therefore the development of a research career plan should underpin professional development programmes for early career researchers.

We have learned from our research and the early career researcher programme that developing early career researchers does not mean teaching them how to do research – it means teaching them how to build a track record which can lead to a research career. Based on feedback provided by participants, and our observations, we consider the success of these programmes is due to the regular face-to-face workshops, the supportive research environment provided by the programme, and the development of a research career plan. Future research will include an annual follow-up of these cohorts of early career researchers to track their progression over time.

As noted earlier, there are two ways to invest in building research capability. Our advice to younger universities with an emerging research culture is that recruiting research academics who can already deliver high quality outputs should happen in combination with a comprehensive strategy of developing individuals who have the potential to deliver high quality outputs. The role of development programmes for early career researchers is not to teach research skills, but to ensure a track record is developed within the first five years of completing a doctorate. A development programme for early career researchers is a short-term investment for longer-term returns, but these programmes do have immediate impact on research productivity for the individual researchers and for the organisation. The investment in Central Queensland's Early Career Researcher Program clearly demonstrates the value of researcher development on research outputs and research careers, which will impact on the University's ability to remain competitive and access government funding that is linked to research quality and output. Over time, this will contribute to economic prosperity, the knowledge economy and the quality of life of our society.

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The value of researcher development: case studies of postgraduate researcher alumni

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Introduction

Engagement with researcher development activity is one of many influences on a postgraduate researcher's (PGR's) performance. Quantifying the impact of this provision on outcomes, such as subsequent destinations into employment or further research activity, is however difficult.

The Rugby Team Impact Framework developed for evaluation of researcher development in 2008 provides "a reference point for understanding the potential impact points (levels) at various stages in a 'pathway' towards realising a researcher development outcome" (Bromley and Metcalfe, 2012). The Impact Framework defines five impact levels, which measure the effect of the skills development provided.

This paper describes a project whose aim was to evaluate researcher development activity up to impact level 4 outcomes, by collating case studies from PGR alumni of the University of Birmingham.

Postgraduate researcher development at the University of Birmingham

The PGR development programme coordinated by the University of Birmingham Graduate School has been designed to develop skills and behaviours in a range of topics, and to support improvement in academic and employability outcomes. The activities range from e-learning courses and short, face-to-face skills training workshops, to longer programmes. An evaluation strategy has been devised which identifies priorities (guided by the goals of the University of Birmingham's strategic framework defined in Shaping our Future: Birmingham 2015) and sets out a plan for how the programme will be reviewed and adapted as evaluation results become apparent. This means that we reflect upon and react to the results and ensure our provision is under continuous improvement and development.

Evaluation techniques have been identified to allow measurement at all impact levels.

Qualitative and quantitative data is collected via hard copy feedback forms, online surveys, interviews and focus groups. As part of this strategy, the desire to evaluate through to final outcomes was recognised.

Evaluation level 4: outcomes

A widely used model for evaluating training provision was originally developed by Dr Donald Kirkpatrick in 1959 (Kirkpatrick and Kirkpatrick, 2009). He created a four-level model which clarifies what is expected at each stage of training: Reaction, Learning, Behaviour and Results. After the national provision of Roberts funding to support researcher development in the UK in 2004, a group known as the 'Rugby Team' (renamed in 2010 as the 'Impact and Evaluation Group') was formed by the Roberts Policy Forum to determine how evaluation can be applied specifically to researcher development (Bromley, 2010). The outcome of this work was the Rugby Team Impact Framework (RTIF) (Bromley and Metcalfe, 2012), which builds on the Kirkpatrick model to set out a sequence of five levels of potential evaluation appropriate to researcher development: 0 – foundations, 1 – reaction, 2 – learning, 3 – behaviour and 4 – outcomes.

It is particularly difficult to find evidence to support impact at levels 3 and 4. This is partly because the impact can only be measured once time has elapsed between the postgraduate researcher engaging with the development activity and the learning being embedded in their practice, so that the effects of the development activity can be demonstrated. It is not expected that there will be causal links between engagement with a researcher development activity and a longer-term outcome, such as being employed in a certain role, as this type of outcome is dependent on many other factors. Therefore attempts to gather evidence for the level 3 or 4 impact of researcher development have to be undertaken in a way which does not expect to find direct links in the same way that a feedback form completed immediately following a course can. One way of collecting this information is through case studies, which collect information about an individual's current situation and ask them to reflect on their influences. The definition given by Yin (2003) is that a case study is "an empirical enquiry (i.e. from observation or experiments) that:

1. Investigates a phenomenon within its real life context (i.e. looks at a case in its own time and space)

2. Especially when the boundaries between the phenomenon and context are not clearly evident (e.g. something which has developed over time).

PGR alumni case study project design

The University of Birmingham Graduate School was keen to collect feedback from recent alumni to investigate whether links can be demonstrated between our researcher skills development programme and future employability, and to assess whether there are gaps in our provision. It was also identified that other teams such as PGR Admissions, Careers Network, individual Schools and the Alumni Office within the University of Birmingham required information from former PGRs. Feedback from PGR alumni could be used to inform potential recruits about the benefits of acquiring subject knowledge and research skills, investigate which aspects of the facilities, research culture and environment at the University of Birmingham were most valued by our alumni or to encourage alumni to share their experiences in employment, which could potentially be used for further networking to share skills and contacts.

The project aim was to collect case studies from former PGRs at the University of Birmingham to include all aspects, from why and how they came to Birmingham, to where they are now, and how their research experience helped them in their careers.

Previous approaches to the alumni population have met with variable success. Mass emails sent to all leavers in the past had failed to generate significant responses, so an alternative approach involving a small set of PGR alumni (identified from those who had engaged with University of Birmingham Graduate School researcher development activity and for whom we have contact details) was proposed as a pilot study.

A subset comprising 27 of these alumni were sent an informal and personalised email from Katharine D'Souza (University Graduate School Data Officer and project lead), asking them to support a research project by completing a survey which would take no more than five minutes of their time. The final question in this survey asked if they would be prepared to help further and stated how useful this would be to the University. It was hoped that emphasising in the email how quick, easy and useful the questionnaire would be to a research project being run by a named individual, would encourage a greater response rate, although it was assumed that most respondents would not reply positively to the final question. While a short questionnaire could not provide full case studies, it would begin to address some questions, could provide some interesting quotes and could potentially open doors for more detailed information to be collected.

The success criteria for the pilot were defined as achieving a 25% survey response rate (i.e. seven people would complete the survey), with 10% agreeing to be contacted for further information (three people). Ideally, response rates would be much higher, but these figures were decided upon as they were realistic but challenging, based on recent experience of response rates to surveys used by the University Graduate School.

During the course of the project, we were notified that an electronic mailing was to be sent to all PGR alumni and were offered the opportunity to include a link to our survey as part of this. While this did not fit with our original research design of sending personalised messages to selected alumni who had engaged with transferable skills training, the decision was taken that it would be a useful opportunity to target a wider audience, while avoiding sending too many emails from the University to our alumni in a short space of time.

PGR alumni case study project results

The pilot group were sent an email containing a link to the survey on the 23rd August 2013. By the 10th September 2013, five responses had been received, two of whom gave their name and email address to be contacted for further information. A reminder email was sent to the group on the 13th September (minus the two named individuals we knew had done the survey) and by the 18th September, a further four responses had been received, three of whom gave their name and email address to be contacted for further information. Table 1 below shows a breakdown of the contact made and responses received.

No. of PGRs contacted	No. of responses received	Details given for further contact
27	9 (33%)	5 (19% of those contacted, 56% of survey respondents)

Table 1. Pilot survey distribution and response

From this it can be seen that the pilot project had exceeded its response success criteria.

An email containing a link to the survey (and information about three other projects or events) was sent to the full PGR alumni population on the 18th September 2013. The survey closed on the 11th October 2013 and table 2 shows the breakdown of responses.

No. of PGRs contacted	No. of responses received	Details given for further contact
802	11 (1%)	6 (<1% of those contacted, 54% of survey respondents)

Table 2. Full survey response rate

Responses to the questions included in both surveys are shown below. When response rates are low, the representativeness of any results is in question (Nulty, 2008), which needs to be considered in the conclusions drawn from the analysis.

How useful was your research experience to your current role?

This question was designed to collect feedback on the benefits of PGR study to meet the needs of Admissions, Alumni and Schools. Five potential answers were given to this question with respondents able to select as many as were applicable. Table 3 below gives a breakdown of the combined responses. (No particular differences were noted between the pilot group and the respondents to the full population survey.)

Answer	Positive response count
I wouldn't have got my current job without a postgraduate qualification	9 (45%)
My PG qualification gave me an edge over other candidates for my current job	6 (30%)
My research helped me develop skills I can apply in my job	11 (55%)
I'm not using the knowledge or skills I acquired during my postgraduate studies	2
My research was for personal interest, not to further my career	1

Table 3. Pilot responses to 'How useful was your research experience to your current role?'

Has skills training been beneficial beyond your studies?

This question was designed to collect feedback from the pilot group about the benefits of transferable skills training provided by the University Graduate School (all those contacted in the pilot had engaged with at least one of our training courses). Three potential answers were given to this question, with respondents only able to select one. Table 4 shows a breakdown of the responses to the pilot study.

Answer	Positive response count
Yes, I developed transferable skills which have been of use beyond my research	7 (78%)
I don't remember attending this sort of training	1
No, I haven't applied these skills	1

Table 4. Pilot responses to 'Has skills training been beneficial beyond your studies?'

Table 5 shows a breakdown of the responses from the full PGR alumni population. Not all those contacted had engaged with University Graduate School training courses but may have been on School or College run courses. The survey text sent to this group was amended and did not refer to the respondent having received transferable skills development but instead offered the option to reply 'I didn't attend this sort of training'.

Answer	Positive response count
Yes, I developed transferable skills which have been of use beyond my research	6 (55%)
I didn't attend this sort of training	4 (36%)
No, I haven't applied these skills	1

Table 5. Full survey responses to 'Has skills training been beneficial beyond your studies?'

Would you recommend postgraduate research at the University of Birmingham?

This question was designed to collect feedback on the benefits of coming to the University of Birmingham to meet the needs of Admissions, Alumni, Schools and Colleges. Sixteen out of the twenty survey responses were positive (80%).

What was the best thing about your time at Birmingham?

This optional question was designed to collect feedback about the benefits of coming to Birmingham to meet the needs of Admissions, Alumni, Schools and Colleges. The free text responses given by fourteen of the respondents to the combined survey contained content which fell in the categories shown in table 6 below.

Category	Count of positive responses
Supervision	5
Opportunities to develop skills	6
Facilities/resources/environment	6
Nature of the work	5

Table 6. Pilot responses to 'What was the best thing about your time at Birmingham?'

A sample quote given in response to this question was: "Great supervisor and opportunities to further develop my skills (e.g. courses and training)". This was scored in both categories of 'supervision' and 'opportunities to develop skills'.

Would you be able to spare a little time to tell us more about your experiences?

This question was designed to make contact with PGR alumni who would be prepared to work with us so we could collect more detailed information, or to identify people prepared to act as ambassadors for PGR study at the University of Birmingham, for example by giving talks. Five respondents to the pilot survey gave their email addresses to be contacted again. Six respondents from the full PGR alumni population gave their email addresses to be contacted again.

PGR alumni survey analysis

When comparing the response rates to the survey which went to the targeted pilot group (33%) with that which went to the full PGR alumni population (1%), it appears that the approach of sending personalised rather than corporate emails is more successful in prompting the desired action from the recipient. Making the appeal as a fellow researcher, highlighting the shortness of the survey, explaining the benefits to the University of responding and use of a reminder email may have helped in getting a higher response rate to the request. The effect of the approach to the full PGR alumni population may have been diluted by including other topics within the same email. The concern that frequent contact might lead to lower response rates means that sending too many emails to alumni from the University is to be avoided, as is over-surveying the population. The data collected does however need to be taken in the context of the response rate. The results reflect the experience of some former PGRs, not all of them.

Once alumni began to complete the survey, roughly the same proportion from each group (56% of the pilot group, 54% of the full group) were willing to give their details to be contacted for further information.

Across the two survey groups the most common response to the question 'How useful was your research experience to your current role?' was 'My research helped me develop skills I can apply in my job' with 55% of all respondents giving this answer. This is not necessarily a reference to transferable skills development (they may be referring to subject or research specific skills) but is a good indicator of the value of the PGR experience to future employment. 45% of the responses indicated 'I wouldn't have got my current job without a postgraduate qualification' while 30% said 'My PG qualification gave me an edge over other candidates for my current job'.

For the question which specifically asked about transferable skills development, 65% of all respondents said 'I developed transferable skills which have been of use beyond my research'. Of the sixteen respondents we know had, or who identified that they had, attended specific transferable skills training, 81% gave this answer, which can be seen as evidence to support the ongoing benefits of engaging with this type of skills development and can be recorded as a level 4 outcome for our researcher development programme evaluation.

80% of respondents would recommend research at the University of Birmingham although there were no particular trends in the comments given in response to the question 'What was the best thing about your time at Birmingham?'

PGR alumni case studies

Eleven respondents gave their name and email address indicating that they were happy to be contacted for further information. Emails were sent to thank these people for their participation to date and to ask if they would be prepared to be interviewed if they were in the UK (face-to-face for those in Birmingham, by phone for others), or to complete a longer survey (option given to UK-based and overseas alumni). Replies were received from six of the eleven (55%) with two agreeing to be interviewed face-to-face with an audio recording to be used as a podcast, two agreeing to a telephone interview, and two agreeing to complete a longer online survey. Quotes and transcripts from the case studies will be used on the University website to advertise to current and prospective PGRs the value of engaging with researcher development activities.

Some example quotes received during the interviews and from the longer survey responses include:

> " From my PhD I learnt a combination of skills – both technical and softer skills such as communication. Around 70% of my current work is administrative so skills such as budget management, training and team-building are important. Of course my research skills are also useful in designing and then testing hypotheses in the laboratory. While at the University of Birmingham I took part in the Talent Pool to develop my entrepreneurship as well as being involved with the ADEPT programme, for which I organised skills training sessions. I also took advantage of all the training opportunities on offer, for example in using software. The University is a great place to pick up lots of skills and the advantage of taking these courses while you are a PGR is that it's all available for free. "
>
> (PhD Biosciences alumnus)

> " ...in my time at Birmingham I went to a number of training programmes – the entrepreneurship summer school and the Talent Pool and they were all useful in developing skills which apply outside academia. The most useful things for me from the Talent Pool in particular were interpersonal, networking skills. "
>
> (PhD Computer Science alumnus)

> " I took all the opportunities I was given by the Graduate School here, I attended if not all, then most of the courses, from how to present and prepare a poster, to how to present at a conference. I participated in the poster conference competition, so I tried to expose myself to everything I could to have the best knowledge... Being able to present your work, to feel confident, to speak in public, this is something that I hated in the beginning because I'm not a native speaker, so it was even more difficult for me to stand in front of the audience and talk. But then I realised that I wasn't feeling more confident, even in Greek, so it's a skill that I learnt and I practise. Definitely everybody, in every job, needs to stand in front of an audience at some point and do a presentation, so I do think participating in all the training will help you in general in your career and with your confidence, not only if you want to be an academic. "
>
> (PhD Education alumna)

> " I took part in training on writing skills and team building and am now working in a collaborative team to meet goals and am writing papers. "
>
> (PhD Computer Science alumnus)

> " ...don't assume that transferable skills are things that are just a bit lofty and out there and that you don't really need to pay attention to. In actual fact the information in these sessions has been something that I have used constantly in my working life. "
>
> (MRes Psychology alumna)

While interviewees were asked if they had identified any skills gaps since leaving the University, which it would have been helpful to have addressed during their time as a PGR, no trends emerged from the responses given.

Many of our original respondents did drop out, meaning that we were down to six participants by the final stage of the project. However, these six have all yielded valuable case studies, highlighting the success of transferable skills training for PGRs and providing quotable material in support of the University of Birmingham as a good choice of location for researchers and a provider of useful researcher development activities.

Future work

The key success of the project was that 81% of our survey respondents who had taken part in transferable skills training at the University of Birmingham stated: 'I developed transferable skills which have been of use beyond my research'. This gives evidence for level 4 external outcomes from our training and development activities and goes beyond the feedback given immediately after development activities in which participants generally state they are satisfied with the activity (Level 1: Reaction) and are likely to change their behaviour as a result (Level 2: Learning). The results of this project also demonstrate the wider value of our work on and investment in skills development both for the quality of the PGR experience at the University of Birmingham and the influence this has on the careers of our alumni.

We intend to repeat the survey annually with PGR alumni that we know accessed researcher development activities. From this we will be able to keep our bank of case studies fresh and monitor satisfaction with our services over time.

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Using masters' projects to evaluate researcher development activities

Dr Rob Daley, Heriot-Watt University, UK

Introduction

While there are few valid arguments suggesting that evaluation of researcher development activities is unnecessary or of little value, evaluation poses a significant challenge for most researcher developers. Within the UK researcher development community most developers are very much focused on developing innovative and successful activities for researchers within their institutions and have little time to focus on evaluation activities. Many also have come into researcher development roles without any previous evaluation experience and are required to learn the necessary skills and knowledge in the role.

One of the perennial challenges within universities is to find appropriate research projects (and supervisors) for students in the final year of their degree or on masters' programmes.

This paper outlines an approach to evaluating researcher development activities through masters' level student projects. This report focuses on my experiences at Heriot-Watt University between 2009 and 2013. While these projects were carried out within a very specific context, it is hoped that the learning from this can be adapted and applied to a wide range of evaluation situations.

Background to these projects

At the outset of this work in 2009, the then Rugby Team Impact Framework (Bromley et al 2008) had been recently published and the UK researcher development community was facing the challenge of how to develop evaluation approaches that would meet the expectations of the UK Research Councils, as well as provide useful information to those responsible for researcher development at an institutional level.

While this was being considered, the wider academic development function at Heriot-Watt University (HWU) was undergoing changes. One result of these changes was that I inherited responsibility for a work-based learning (WBL) student from a programme run at the University of Edinburgh (UoE). The department had traditionally taken one WBL placement student for a number of years and I intended to continue this without having given much consideration as to what work the student might do. It was only when the time came to propose a suitable project for the WBL student that I considered that they might carry out an evaluation project.

The end result of this initial WBL project was that the student had carried out an excellent project, and as supervisor, I had learned much about designing and running an evaluation project and about using the impact framework. This project led to both the student and myself being invited to present our findings at conferences and the student staying on to do their dissertation project looking at a different aspect of researcher development. This initial project led to three further students coming to HWU to carry out their WBL projects, with three of these staying on to do their dissertation projects.

Before outlining the various approaches to evaluation that were used and the outcomes of these projects, I would first like to provide some background to the masters' programme and the requirements of the student projects.

University of Edinburgh MSc training and development management

The University of Edinburgh has a longstanding postgraduate level programme in Training and Development Management. One of the modules on this course is a work-based learning project where the student is expected to carry out a project in a work-based environment. There is an expectation that the project will have a strong connection to the theory and practice that the student has covered in other areas of their course, and that the student will make a positive contribution to the work of the host organisation.

During the 20-credit module, the student is expected to dedicate 20-24 days to the project over the course of the term. This roughly equates to two days a week, and normally takes place between January and April. At the outset of the project a learning agreement is drawn up and signed by both the student and the host-supervisor. This agreement details the agreed timescale of the project, the administrative arrangements, the project aims and objectives, the intended learning outcomes and an outline of the expected project work. The assessment for this module is based on a reflective report written by the student and a report written by the supervisor at the end of the project. A project report for the host-organisation is not a requirement of the module, but is a common element of such WBL projects. Such a report was written for each of the projects covered by this paper.

The dissertation project (50 credits) requires the student to carry out an extended research project which is professionally relevant to the course content. Students are expected to undertake some classroom elements which cover research methods, as well as other knowledge and skills required for such a project. At the outset of the project, the student is provided with a dissertation supervisor who is normally a member of staff within the UoE department. The student is responsible for drafting a 2000 word project outline at the start of the project; the dissertation supervisor has to agree to this before the project can start. For projects which take place outside of the UoE, it is common for the student to have a local supervisor (in this case it was myself). At the end of the project the student is expected to submit a dissertation of around 15,000 words.

The remaining content of the programme offers the opportunity to undertake modules on evaluation, research methods and planning research, as well as other HR and training development focused topics, so some students will have had an introduction to evaluation while others will not.

The Impact Framework

The Impact Framework (Bromley and Metcalfe 2012) was first published as the Rugby Team Impact Framework (RTIF) in 2008 (Bromley et al 2008)[39]. The framework is an evolution of the Kirkpatrick (2006) approach to evaluation of training and development. The Impact Framework considers a number of different stages or steps in training and development from the provision of training and the context in which this occurs, to the final outputs or benefits accrued from the training in a wide sense. The framework consists of 5 levels each of which consists of one of these stages or steps.

- Level 0: Foundations: At this level the provision of training and development is measured, along with the opportunities for development available to researchers. Examples include the number of workshops provided, the provision of staff to support researcher development, the provision of online development tools, opportunities for researchers to put their development into practice etc.

- Level 1: Reaction: At this level we are concerned with measuring participant reaction to training and development activities. This is usually collected through post-course evaluation forms (commonly referred to as 'happy sheets'), post-its or surveys, and specifically focuses on immediate reaction to development events and participant satisfaction with them.

- Level 2: Learning: At this level with the focus is on measuring the learning of the participants. This learning may be evidenced through a change in participants' attitude, by an increase in their knowledge or the development/enhancement of various skills.

- Level 3: Behaviour: At this level we are interested in measuring the application of learning by the participants. To what extent has their change in attitude/knowledge/skills influenced their approach to their professional activities?

- Level 4: Outcomes: At this level we are focusing on the results or outcomes that the changes in behaviour have brought about. These include improvements in the quality of research carried out by participants, improved publication rates, success at job interviews, improved knowledge exchange etc.

Evidence at levels 0 and 1 is generally straightforward to collect and is commonly collected and analysed by UK Universities. Level 2 evidence is more difficult as this requires some way of measuring the learning of participants. While universities are adept at measuring student learning through standard assessment methods, it is not usually appropriate to assess researchers in a similar manner unless they are undertaking development through an accredited course/programme. However, level 2 evidence may be obtained through specifically designed questionnaires, interviews, focus groups and other means. Evidence at level 3 generally requires specifically designed instruments similar to those which collect level 2 data. One important element for evaluation at level 3 is the opportunity that the researchers have had to apply their improved attitude/knowledge/skills. In some cases while researchers engage in training and development, they may not always have the opportunity to put their learning into practice in their current role. For instance, the CROS 2013 data indicates that 31% of respondents had not had the opportunity to engage in teaching activities despite wishing to do so (Mellors-Bourne and Metcalfe 2013). Similarly 31% had not

had the opportunity to supervise undergraduate or postgraduate student projects (Mellors-Bourne and Metcalfe 2013).

Evidence at level 4 "provides the greatest challenge to training professionals" (Kirkpatrick and Kirkpatrick 2006, p69). It may take a considerable length of time for the level 4 outcomes to occur, and this may occur far away from the university in which the training and development took place. Furthermore, if evidence at level 4 is obtained, ensuring that such outcomes can be connected to the training and development engaged in by the researcher, provides a further challenge for the evaluation team. Level 4 outcomes would commonly be due to a number of different inputs and researcher experiences, of which training and development may be only one element. These outcomes may also be due to the efforts of many stakeholders/actors of which only one/some may be researchers. Further consideration of level 4 impacts can be found in the 2012 Impact Framework report (Bromley and Metcalfe 2012) and in Kirkpatricks' discussions (Kirkpatrick and Kirkpatrick 2006).

Student selection

An outline of the various projects on offer was provided to the course tutor and the potential students for consideration. The project outline presented a general approach with possible elements of researcher development that could be the focus of the evaluation and possible evaluation approaches or tools that might be used. The idea was to offer a variety of pathways to the students so that they could choose projects that were attractive to them and that would provide them with the opportunity to further develop their research and evaluation skills. The course supervisor was responsible for matching the students to the projects.

Once a student was assigned their project, the student, the course leader and I met to discuss the overall project and to provide the student with more context and detail of the optional paths open to them, to help them to choose their specific evaluation focus. In advance of this meeting the student usually provided a CV and at the meeting we discussed the student's motivation for choosing this project and what they hoped to gain from it. By the time the student had chosen the element they were going to evaluate, much of the evaluation approach had also been identified.

Getting started

The next challenge was to get the project underway and settle the student into the project work. The first steps were to provide the student with some background reading and, if possible, a previous project report to let them get a feel for what they would need to produce at the end. After discussion of the various elements of the project, the student was required to draw up a project plan. This ensured that they reflected on what the overall project would entail, the timing of the work and to provide me with a measure of how well they understood what we had discussed. Normally, the student would come back with further questions, or after submitting the plan, we would discuss changes and improvements. By the end of the second or third week the plan was usually sufficiently developed to provide the necessary guidance for the student through the project and to provide me, as supervisor, with a means to measure progress and predict problems and issues.

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[39] The Rugby Team was a UK HE Sector working group on the evaluation of skills development of early career researchers. In 2009 the Rugby Team became the Vitae Impact and Evaluation Group (see https://www.vitae.ac.uk/communities/vitae-impact-and-evaluation-group)

Project design

All of the projects had a similar project plan and design:

1. Background reading
2. Project plan development
3. Desk research: analysis of engagement statistics and 'happy sheet' data, and any other data relevant to the activities being evaluated
4. Development of an online survey
5. Analysis of survey data
6. Semi-structured interviews or focus groups
7. Project reporting

From a project design perspective, at the outset I was unaware of the student's abilities and of their commitment to the project. Participant interest was also difficult to predict from the activities that were being evaluated, so we had to ensure against low participation. It was important that the student had access to sufficient data to allow them to demonstrate their abilities and to have sufficient work to complete their report.

Bearing this in mind, I designed the projects with three possible outcomes:

1. An 'okay' project – good enough for the student to pass but nothing special, with enough data from the outset
2. A good project with the student heading towards distinction, survey and interviews/focus group, useful results with scope for the student to stand out
3. A great project – possibility for further more in-depth research, all you could wish for from it, great insights, publishable? Potential for Vitae workshops etc.

The first level projects had sufficient data at the outset (engagement statistics and 'happy sheets') to allow the student to complete a project report that would be sufficient to pass the module, but would be unlikely to gain higher marks. This category included projects with low participation rates or projects where the online survey was run too late to allow follow-up interviews/focus groups. This was to ensure that even students who were weak or not sufficiently committed to the project could still demonstrate their abilities and gain a just return for their endeavours.

The second level projects, which were the typical projects, included an online survey and some interview or focus group data. This gave students an opportunity to fully demonstrate their knowledge and abilities with enough results/data to provide opportunities for medium to high grades to be achieved.

The third level projects enable the student to demonstrate an ability beyond that normally expected for such a project. This might include experiences of other stakeholders such as delivery staff, supervisors and principal investigatorss, managers, researcher developers, employers etc. These projects would also provide opportunity to develop outputs beyond the project report, such as peer-reviewed publications, conference papers/presentations, contributions to workshops at national and regional practice sharing events, and other publications.

The table 1 shows the different evaluation tools used and the impact level that this information maps to.

Method	Data provided	Student to collect data	Impact Framework Levels
Engagement data	√		0, 1
Happy sheets	√		1
Online questionnaire		√	1,2,3,4
SKIPI[40]		√	2
Semi-structured interviews		√	2,3,4
Focus groups		√	2,3,4

Table 1: Summary of evaluation tools used and impact level of the information gathered

Supervisory approaches

Success in these projects is very much dependent on the supervisory approach used. In all cases, I used a situational leadership approach (Hersey and Blanchard 1969) and tailored my approach to fit the particular student and situation. It is important to encourage the student to stretch themselves and engage positively in the project, whilst not feeling out of their depth. If the student feels confident in their own ability to meet the challenges the projects brings, they are more likely to devote more time and energy to the work, and are more likely to produce worthwhile outputs and outcomes. In this regard I try to ensure that the student operates predominantly within the "zone of proximal development" (Vygotsky 1978).

Figure 1 summarises the situational leadership model. Using this approach the supervisory role is modified to best support the student at whatever stage they are at in the project or task. While the exact approach depends on context, and may change from task to task, there are some general patterns that have emerged during these projects.

Generally, the start of the project requires a directing approach, where the student requires their work activities to be identified for them. This includes identifying the appropriate background reading, setting the key milestones for the project, setting out the initial data analysis and testing the students writing and analytical abilities. Over the first three or four weeks this directing approach is complemented with coaching behaviours as I try to coach the student towards identifying the most appropriate strategies and analysis, and towards identifying the key knowledge and skills that they will need to develop to succeed with the project.

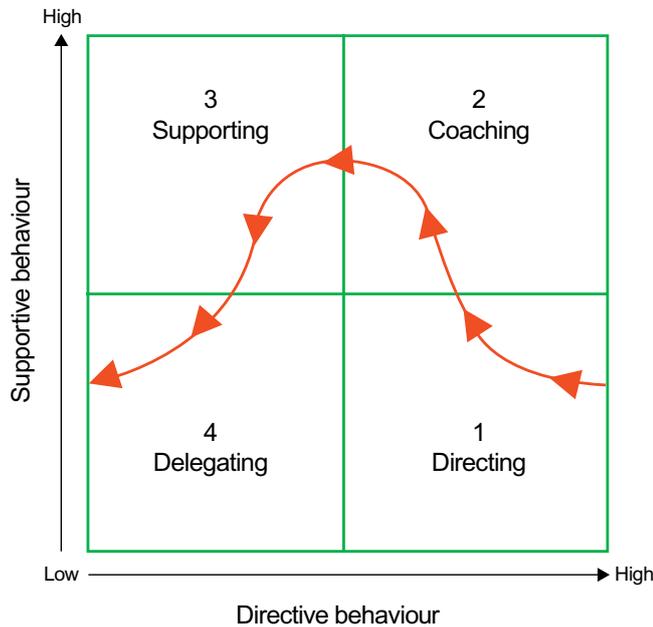[40] Skills Perception Inventory, for details see Alpey and Walsh 2008

Figure 1: Hersey and Blanchard's Situational Leadership Model

Once the project is up and running, and if the first few weeks have gone to plan, it is possible to move to a more coaching/supporting role. During this stage, I use a coaching approach when discussing the data, the analytical approaches being used and the conclusions being formed from this. With regard to the student work, time management and task prioritisation, I adopt a more supporting approach, where the student takes responsibility for day-to-day management of the work and I ensure that I am available to discuss the project whenever they feel the need to consult me.

It is important at this stage that the student understands that the supervisor is fully engaged with the project, whilst accepting that the supervisor will have many other calls on their time, but is available to the student, should they wish to discuss issues or need advice. The supervisor also needs to be assured that the project is progressing within expected timescales. The short time-scales of these projects mean that the supervisor must keep a close eye on progress and be aware of any issues that arise as soon as possible. Ideally, the student-supervisor relationship will be sufficiently strong for the student to be open and honest regarding their confidence, in identifying areas of uncertainty or any concerns that they have. Nevertheless it is the supervisor's responsibility to be alert to any problems that may arise especially in cases where the student may be slow to admit these, either to the supervisor or even to themselves.

While the WBL projects rarely allow much opportunity for the supervisor to adopt a delegating approach, this can occasionally be achieved in the latter stages of a dissertation project, during the report writing stages. It is common that in the final report editing stages, the supervisor role reverts to a coaching or directing approach, as the final changes are made and the student requires the supervisor's direction as to what to omit from the report or which aspects deserve more focus.

At any point during the project, a situation may arise where a directing approach is required. These situations commonly occur when the student starts a new activity or starts to use a new method/approach. This also occurs when the supervisor realises that they

have overestimated the student's ability or have discovered that the project is not going as well as they thought it was. Taking all of this into consideration, I feel that the best student learning occurs when the supervisor adopts a coaching/supporting approach.

Within normal project situations situational leadership works well, but there may be occasions when a different approach is necessary. Gatfield (2005) identified that in times of crisis or when the student is frustrated by the research a "Pastoral" supervisory approach may be required. During these projects I did not encounter any significant issues which required a "Pastoral" approach.

The projects carried out

Over a four-year period from 2009-2012 five evaluation projects were carried out. All of these projects focused on an element of the research student development offered at Heriot-Watt University. One of the main considerations in the choice of evaluation project was that there would be enough participants to provide sufficient data to allow the Masters student to demonstrate their skills and develop their report. Four of these were work-based learning (WBL) projects carried out between January and March with each student spending approximately 24 days on the project. The fifth was a dissertation project carried out between April and August, with the student focusing on the project full-time. The student is more experienced by the time they carry out their dissertation, and having more time to work on this project means that it is carried out more in-depth. As would be expected for a Masters student, these projects include a more in-depth examination of the literature that supports the approaches to evaluation and a more in-depth consideration of the context of the programme(s) being evaluated.

The projects carried out focused on evaluating the following Heriot Watt research student development programme activities:

- the Effective Researcher, (WBL) (Golvushkina 2009)
- the Enterprising Summer School, (WBL) (Pachiappan 2010)
- the First-year induction workshop programme (WBL) (Shi 2011)
- the Effective Researcher, (WBL) (Zhang 2012a)
- Learning Enhancement and Development Skills (LEADS), (Dissertation) (Zhang 2012b)

Impact identified (What we found out!) – case studies

All five of the different evaluation projects identified impacts at levels 1, 2 and 3. In addition, the evaluation of the Enterprising Researcher Summer School identified impact at level 4 (see Table 2). While there is insufficient space available to discuss all of these projects in depth, a case-study of the LEADS evaluation is included to provide a sample of the impacts identified.

Evaluation projects	Levels of engagement			
	Level 1	Level 2	Level 3	Level 4
Effective Researcher 1	√	√	√	
Effective Researcher 2	√	√	√	
Enterprise Summer School	√	√	√	√
PGR Induction	√	√	√	
Teaching	√	√	√	

Table 2: Levels of impact: evidence identified for each project

A case study: The LEADS evaluation

The Learning Enhancement and Development Skills (LEADS) programme is a teaching development programme for research students at Heriot-Watt University[41]. An evaluation of this programme was undertaken in 2012 (Zhang 2012b). The evaluation focused on participant views collected from those who attended the programme during the academic year 2011/12. A mixed-methods approach was used, which included analysis of provision and attendance data, analysis of end-of-workshop feedback forms, an online questionnaire and semi-structured interviews.

Some examples of the impact evidence identified through this evaluation are provided in Table 3.

Impact Level	Evidence identified
Level 0	12 workshops or training sessions occurred 105 individuals engaged with LEADS in this period
Level 1	Over 90% of the participants indicated that the programme met or exceeded their expectations 95% of participants would recommend this programme to other research students 100% of participants found the teaching standard to be very satisfactory
Level 2	Over 90% indicated that their teaching skills were enhanced through participation in LEADS 95% of participants indicated that their confidence in teaching had increased as a result of the LEADS programme
Level 3	75% of participants indicated that they felt their employment options had increased as a result of LEADS 65% of participants indicated that they are more likely to consider a career that involves university teaching 65% indicated that LEADS had increased the effectiveness of their teaching
Level 4	No evidence was identified at this level

Table 3: Evidence of impact from LEADS evaluation

In addition to the impacts identified in Table 3, a number of areas for improvement were also identified through this evaluation. These included the following:

- The organisation and administration of the programme received the highest number of negative comments, with communication being highlighted as a particular issue.

- Increasing the amount of workshop time was recommended by a number of participants, as was the issue of having the workshops in two-day blocks – it was unhelpful and made organising other aspects of their lives difficult.

- More specific linkage to discipline teaching was identified by participants as a way of improving the programme.

As a result of this evaluation a number of changes were made to the programme. The administration of the programme was separated out from other researcher development activity, and the responsibility for all LEADS administration was assigned to one administrator. Rather than teaching in blocks over two days, the programme was split into two-hour workshops run on a weekly basis. This increased the classroom time and provided participants with more time for reflection and self-directed learning between sessions. The recommendation regarding closer focus on disciplines was noted, and had also been identified in other researcher development evaluations (Golvushkina 2009, Shi 2011, Zhang 2012a). However, it was not felt that this could be easily achieved with the resources available in September 2012, so no further action was taken at that point.

These changes appeared to improve the LEADS programme and fewer complaints about administration and communication were noted during the academic year 2012/13. Nevertheless, further evaluation would be required to identify the full benefits of the timetabling changes. While these changes were important, the changes that were not made were equally as important. At the start of the evaluation process, the content of the workshop elements was being considered for review, the results of this evaluation indicate that the content and delivery elements were working well, so no changes were made to these elements.

As indicated in Table 3, the LEADS evaluation found no evidence of level 4 impacts. The sort of outcomes that might be expected to fall into this category would include enhanced learning by the students that the LEADS participants were teaching, evidence that successful completion of LEADS directly led to successful appointment to a teaching role or other employment. This evaluation was on too short a timescale for such outcomes to develop or be identified.

As indicated in Table 2, only one of these evaluation projects identified evidence of a level 4 impact. This was during the evaluation of an Enterprising Researcher Summer School, where a number of respondents to an online survey indicated that they were involved in enterprise or commercialisation projects after attending the summer school. While this seems appropriately identified as a level 4 impact, the direct contribution of the training received through the summer school cannot be measured easily. It may be that the participants would not have engaged in these activities if they had not attended the summer school, alternatively they may have engaged in these activities even if they had not attended the summer school.

How could this approach be applied in other institutions?

While not all institutions provide a ready supply of postgraduate students looking to do work-based learning projects or dissertations in evaluation, this approach could be adapted to enhance the evaluation of researcher development, and other development provision, in many institutions. These types of projects could be suitably adapted to suit undergraduate and postgraduate projects in education and social science disciplines, as well as providing appropriate projects for participants on Postgraduate Certificates in Academic Practice. They could also provide projects for learning and development practitioners pursuing professional accreditation. In addition, projects of this nature would be suitable for internships and work experience opportunities for students from a variety of discipline backgrounds.

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[41] Further details of the LEADS programme can be found at: http://www.hw.ac.uk/research/ald/develop/leads.htm

Conclusions

This paper outlines a specific approach to the use of student projects to deliver researcher development evaluations. While the time-limited nature of these projects presents a specific challenge and inevitably limits the scope of individual projects and the range of evaluation approaches that can be carried out, when run in parallel or as a sequence of projects over time, they have the potential to successfully deliver high quality evaluations of development activities. If designed appropriately, these projects can be further developed or added to by the supervisor or others after the student has completed their contribution. Although this approach will not suit all situations where evaluation is required, nor will all researcher development units have an easy supply of students looking to carry out such projects, there is much scope to adapt the approach to other work-placement situations or internships.

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Vitae, is an international programme led and managed by CRAC, a not-for-profit registered UK charity dedicated to active career learning and development. Working in the UK since 1968, when we ran our first project to support transitions of doctoral researchers to industry, Vitae has great expertise at enhancing the skills and career impact of researchers locally, within a global context.

We work in partnership with UK and international higher education institutions, research organisations, funders, and national bodies to meet society's need for high-level skills and innovation.

Vitae aims:

- **Influence effective policy** development and implementation relating to researcher development to build human capital
- **Enhance higher education** provision to train and develop researchers
- **Empower researchers** to make an impact in their careers
- **Evidence the impact** of professional and career development for researchers

Vitae is supported by Research Councils UK (RCUK), UK HE funding bodies and managed by CRAC: The Career Development Organisation and delivers in partnership with regional Hub host universities.

Further information on our activities with HEIs, researchers and employers may be found on this website, www.vitae.ac.uk