

Impact and evaluation group

researcher skills and careers

A sector-led working group supported by Vitae
Formerly known as the Rugby Team

The impact of researcher training and development: two years on

September 2010

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The impact of researcher training and development: two years on September 2010

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This report provides an overview of the work of many across the higher education sector. Our specific thanks go to the contributors listed on the back cover of this report.

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The impact of researcher training and development

Executive summary

This report summarises wide-ranging evidence of the impact of researcher training and development activity drawn from across the higher education (HE) sector and other key stakeholders, and gathered since the launch in 2008 of the sector impact evaluation framework, known as the Rugby Team Impact Framework (RTIF). It demonstrates that UK HEIs, responding to the recommendations in Sir Gareth Roberts' SET for Success¹ and the Warry report², provide researcher training and development activities that have had, and continue to have, significant positive impacts. These include:

- substantial growth in the training and development opportunities for both postgraduate researchers and research staff
- clear demonstration that researcher development is capable of maximising the investment in research and providing an outstanding return on investment for researcher development
- significant impact on employability, demonstrating direct links between training and development activity and employment of researchers
- significant impact on research practice and outcomes, eg direct links with improved doctoral submission rates, increases in grant income, the writing of academic publications, management of research projects and enhancement of research practice
- improvement in the researcher experience
- evidence of cultural change in HE through supervisors' awareness of the need for and value of skills training and development activity
- improvement in employer awareness of the skills offered by researchers, researchers' awareness of skills required by business
- life changing impact in terms of the personal and professional development of individual researchers.

'... it is very clear for those who work in the researcher training and development sector on a day to day basis, that their efforts do have a significant impact on researchers. In many ways the Impact Framework is about being able to illustrate these strong, predominantly anecdotal, experiences in a clear, accessible and rigorous manner to all interested stakeholders: researchers, academics, HEIs, funders and the Government.'

Rugby Team Impact Framework, September 2008

This report demonstrates that within two years the higher education sector has achieved this key aim of the Impact Framework. The sector and stakeholders now have an evidence base on which to build. Furthermore, the examples of evidence in this report are only a small proportion of the evaluation activity being undertaken by institutions, which people have agreed to share. Considerable further evaluation activity is underway. The effort of the HE sector in this achievement is to be commended.

The existence of the Impact and Evaluation Group, the Impact Framework, and the case studies in this report demonstrate the collaborative, collegiate approach of the researcher development community. Initiated and underpinned by the activities of Vitae, all stakeholders benefit from sharing training and development practices and the emerging practice of evaluating the impact.

The impact detailed in this report demonstrates that any remaining argument from the pre-Roberts culture that researcher development has little or no value for researchers is now untenable. There is an opportunity to move into a new era where debate centres only on the optimum pedagogies and engagement approaches for researcher development rather than a fundamental discussion of value.

This report is one of a vibrant, high impact sector that should go forward into a new sustainable and exciting era with strength and confidence of the considerable continuing impact of researcher development for all stakeholders.

Recommendations

Recommendation 1: To guarantee the continued economic prosperity of the UK; Government, funders and HEIs should ensure that researcher development remains a priority and there is continued and appropriate investment.

Recommendation 2: The growth of research into researcher development activities should continue to underpin the enhancement of pedagogy and practice to take the sector forward in realising the full potential of researcher development and researchers.

Recommendation 3: The case studies in this report should be further analysed to enhance these findings and to consider how best to promote and communicate the impact of researcher development more widely.

Recommendation 4: National and regional mechanisms for sharing of practice, resources and expertise relating to the evaluation and impact of researcher development should continue to be supported and used.

Recommendation 5: Higher education institutions should consider the wide range of impact examples provided in this report with a view to enhancing practice and integrating evaluation into their provision where appropriate.

Recommendation 6: Additional research should be undertaken to evidence the value of researchers' skills to non-HE employers and to further promote awareness.

¹ Roberts, G. [2001] SET for success http://webarchive.nationalarchives.gov.uk/+/http://www.hm-treasury.gov.uk/set_for_success.htm

² Warry, P. [2006] 'Increasing the Economic Impact of Research Councils' see HYPERLINK <http://www.vitae.ac.uk/policy-practice/201891/Warry-Report.html>"www.vitae.ac.uk/policy-practice/201891/Warry-Report.html

1 Introduction

This report provides a summary of the key themes from 120 examples of the impact of researcher training and development activity collated from UK higher education institutions (HEIs), national organisations and additional sources. The majority of examples of impact reported are from research intensive UK universities (17 of the 20 Russell Group³ universities and 9 of the 19, 1994 Group⁴ universities). The report represents a unique and significant body of evidence of the impact of researcher training and development activity in the UK. The impact information is mapped against a nationally agreed impact framework, the Rugby Team Impact Framework (RTIF)⁵ developed in collaboration with the UK researcher development sector and stakeholders by the Impact and Evaluation Group (formerly the Rugby Team⁶). Evaluation case studies have been gathered over a two-year period from the launch of the Impact Framework at the Vitae conference, September 2008⁷. This report includes a summary of all cases studies, including the 27 examples published in the interim report⁸ to the Vitae conference, September 2009.

It should be noted that this report does not claim to be a comprehensive review of evaluation activity, but highlights examples of evaluation that colleagues have agreed to share. Without doubt the examples presented in this report are only a proportion of the activity taking place across the sector, and there is considerable more activity underway. Researcher development is still an emerging area, particularly for research staff. As the agenda matures, so will evaluation activity, as senior managers and practitioners seek to enhance provision and explore the value and impact of specific researcher development activities.

A brief overview of the Impact Framework is given below. Further details of the implementation of the framework and evaluation methodologies are available on the Vitae website www.vitae.ac.uk/impact.

This report presents the key themes emerging from the case studies, and provides a summary table of the case studies mapped against Impact Framework levels, types of impact and audience (Table 1). An appendix containing further information on each impact case study is available as a downloadable pdf from the Vitae website www.vitae.ac.uk/impact.

2 Background

This section provides a brief overview of drivers behind the development of the Impact Framework and its key features.

As identified in the Rugby Team Impact Framework publication⁹, 'the imperative to identify coherent and transparent ways to evaluate has arisen from a number of drivers, including the need to:

- demonstrate the appropriateness of the emphasis on skills development of researchers
- provide evidence to government and funding bodies, such as RCUK and the UK Funding Councils on the impact of their investment in training and developing researchers
- inform the enhancement of the quality of the experience for postgraduate researchers (PGRs) and research staff (RS), both within individual HEIs and across the sector, in line with initiatives such as the QAA Code of Practice for Postgraduate Research Programmes and the Concordat to Support the Career Development of Researchers
- assess the impact of recent initiatives, particularly the Roberts Funding, on the employability (and perceived employability) of PGR and RS'

The purpose of the Rugby Team (re-named in 2010 as the Impact and Evaluation Group), created following the Roberts Policy Forum, January 2005 in Rugby, was 'to contribute to a strategic debate with national stakeholders on how to evaluate the effectiveness of skills development amongst postgraduate researchers and research staff'¹⁰.

The outcome of the Rugby Team development work on evaluation was the Impact Framework (RTIF). This initially was presented to the sector at the Vitae Roberts Policy Forum, January 2008. HEIs were encouraged by RCUK to add examples of their evaluation practice to the Vitae Database of Practice¹¹ as part of their Roberts reporting.

³ The Russell Group, 'represents the 20 leading UK universities which are committed to maintaining the very best research...' www.russellgroup.ac.uk/

⁴ The 1994 Group, 'Established in 1994, the Group brings together nineteen internationally renowned, research-intensive universities.' www.1994group.ac.uk/

⁵ Bromley T, Metcalfe J and Park C, The Rugby Team Impact Framework, 2008, ISBN-13: 978-1-906774-00-4 www.vitae.ac.uk/CMS/files/1.Rugby%20Impact%20Framework_33.pdf

⁶ Further information available at www.vitae.ac.uk/rugbyteam.

⁷ Vitae Researcher development conference, 2008 www.vitae.ac.uk/policy-practice/13491/Vitae-Researcher-Development-Conference-2008.html.

⁸ Bromley, T. (2009) The Rugby Team Impact Framework: one year on published by published by Careers Research Advisory Centre (CRAC) Limited, ISBN-13: 978-1-906774-07-3 www.vitae.ac.uk/policy-practice/248701/The-impact-of-researcher-development-activity.html

⁹ Bromley T, Metcalfe J and Park C, 'The Rugby Team Impact Framework (RTIF)', 2008, ISBN-13: 978-1-906774-00-4 www.vitae.ac.uk/CMS/files/1.Rugby%20Impact%20Framework_33.pdf p3

¹⁰ 'Evaluation of Skills Development of Early Career Researchers – a strategy paper from the Rugby Team', 2006 www.vitae.ac.uk/cms/files/Rugby-Team-annual-report-January-2006.pdf

¹¹ Vitae Database of Practice www.vitae.ac.uk/dop

The purpose of the RTIF is to:

- foster, support and potentially guide existing and new ways of effective evaluation
- encourage further engagement in the evaluation agenda by HEIs
- aid the HE sector in building a more comprehensive evidence base.

At the core of the RTIF evaluation model is a set of impact levels that form a logic progression¹².

Impact Level 0: Foundations

This level primarily measures inputs and throughputs. It relates to the investment in infrastructure for training and development activity, such as an increased programme of training and development activities, the employment of additional staff or improvement in training facilities. Examples of level 0 impact measures are metrics such as the number of training opportunities offered, the number of researchers participating, or more specific examples of the number of researcher interactions with industry as the result of a particular training activity. From the perspective of a researcher as a participant in training and development activity, level 0 would be a baseline assessment of skills and training needs.

Impact Level 1: Reaction

This level indicates the reaction of participants to training and development activities. For example, at the end of a workshop participants may be asked what were their views of the experience. What was their view of the training programme as a whole? On a programme level, doctoral graduates could be asked about their reaction to their experience of doctoral study.

Impact Level 2: Learning

This level reflects 'the extent to which participants change attitudes, improve knowledge, and/or increase skill as a result of attending the programme'¹³. For example, does a researcher have a better understanding of how to work effectively within a team as a result of participating in a team building development opportunity?

Impact Level 3: Behaviour

This level reflects 'the extent to which change in behaviour has occurred because the participant attended the training programme'¹¹. Is the researcher now managing their project and time better as a result of the development activity? How has the researcher applied what they have learnt? How has behaviour changed?

Impact Level 4: Outcomes

This level measures the final results of the training and development activity. Have changes in behaviour resulted in different outcomes? Has the quality of research improved? Is there a more highly skilled researcher workforce? Are researchers more employable?

3 Key impact themes

This section explores the key themes emerging from the case studies and numbers refer to the entries in Table 1.

The case studies present a wide-ranging and significant body of evidence and it is not possible within this short report to cover the richness of the individual and collective case studies, nor to reference them all. The reader is encouraged to download the accompanying Appendix to this report containing more detailed information on each of the case studies and to explore the evaluation cases studies presented on the Vitae website www.vitae.ac.uk/impact.

3.1 Researcher development provision

There has been massive growth in UK HEIs in terms of the diversity and volume of training and development activity offered since the Roberts recommendations. This is illustrated by the vast array of development opportunities within the evidence presented in this report. With 120 examples of impact reported here it is clear that provision has developed rapidly, programmes have been considerably strengthened, and many HEIs are evaluating in depth. The RCUK 2008 Roberts reporting summary (109) states that 533 people were employed by HEIs in the researcher development area during 2007/08. A further RCUK report¹⁴ shows that there has been significant growth in central coordination and provision (108). Overall, fewer than 10% of HEIs showed provision little changed in quantity or quality since 2004 (108).

As well as institutional provision, there are many examples of collaborations between universities. Vitae offers a range of activities drawing together researchers from different institutions. Example evaluations in this report include a Careers in academia event run by Vitae Yorkshire and North East Hub (117) and Vitae Scotland and Northern Ireland Hub events, Broadening horizons (115) and Effective researcher (116). There are also a number of university collaborations on enterprise (104), shared training across North East universities (101), a Loughborough and Nottingham enterprise collaboration (19) and a Scottish universities collaboration (55).

A further impact dimension is of practice in researcher training and development being shared between institutions to raise the quality across the sector. For example, the development of high-quality 'packaged' programmes, such as the Vitae Effective researcher (111) delivered by over 30 institutions to more than 3000 researchers. Or more informally, for example, a researcher experiencing the presentation technique 'Pecha Kucha' at a Vitae Yorkshire and North East Hub public engagement event leading to the technique being used at Huddersfield University (59). There are currently over 800 published examples of researcher development activities on the Vitae Database of Practice.

¹² The basis of the logic progression is the work of Kirkpatrick. The critiques of Kirkpatrick, for example Kearns, are also reflected in the Rugby Team Impact Framework. Kirkpatrick D L. and Kirkpatrick J D, (2006) 'Evaluating Training Programmes', Third Edition, Berrett-Koehler Publishers Inc ISBN-10: 1-57675-384-4; ISBN-13: 978-1-57675-384-4

Kearns P and Miller T (1997) 'Measuring the Impact of Training and Development on the Bottom Line' Pitman Publishing ISBN 0 273 63187 X

¹³ Kirkpatrick D L and Kirkpatrick J D (2006) 'Evaluating Training Programmes', Third Edition Berrett-Koehler Publishers Inc p22

¹⁴ RCUK 'Analysis of University Reports on Career Development and Transferable Skills Training (Roberts) Payments' (to be published during 2010 www.rcuk.ac.uk/news/100527.htm)

3.1.1 Baseline analysis

There has been criticism of a lack of baseline prior to the emergence of the Roberts agenda as a reference point against which to measure change. A number of studies reported here do provide interesting baseline information, foundation level 0, for future studies:

- a needs analysis study from the University of Manchester (76)
- Imperial College projects (13, 14) in research skills perceptions
- studies on the skill level of research staff groups at the University of Sheffield (94), a Russell Group university (3) and Queens University Belfast (33)
- the University of Strathclyde case study (98) setting out the skills required by employers in terms of enterprise
- a case study from Swansea University (34) regarding information literacy
- the QAA special review (107) providing information on the status of training and development activity in 2005-06
- supervisor awareness surveys such as the University of Bath (43) in 2007, the University of Exeter (54), the University of Cambridge (45) and Cardiff University (6).

3.1.2 Provision for postgraduate researchers

An analysis of a sample of 95 of the 2009 institutional reports on the use of Roberts funding, compared with their respective 2004 outline strategies, provides a clear picture of the distance travelled over the five years (108). The percentage of HEIs with extensive provision for postgraduate researchers has increased from 10% in 2004 to 70%-80% in 2009. This is reinforced by research from the 1994 Group (1) that found, 'widened scope and extent of training programmes'.

The existence of the QAA Code of Practice provided an additional driver helping HEIs to implement rapidly the Roberts recommendations for postgraduate researchers. The QAA (107) findings from their 2005-06 review of postgraduate research degree programmes found, 'most [institutions] now have well developed skills development and research training programmes', demonstrating significant change in the initial years of Roberts funding.

Cardiff University (6), the University of Leeds (60) and Newcastle University (28) provide postgraduate researcher participation figures that demonstrate the significant growth in opportunities and uptake of the opportunities. The national Postgraduate Research Experience Survey (PRES) findings (53) also demonstrate rising satisfaction with opportunities for skills development from postgraduate researchers.

3.1.3 Provision for research staff

The analysis of the 2009 institutional Roberts reports compared with the 2004 reports (108) shows that the implementation of the Roberts recommendations for research staff is less well developed. HEIs were starting from a lower baseline for research staff, with less than 10% reporting extensive career development provision in 2004. A quarter of HEIs reported partial tailored

provision, with a third providing access to general staff training. A third of HEIs reported no provision for research staff, or did not report¹⁵.

The momentum on research staff provision was also slower to build than for postgraduate researcher provision. HEIs were more likely initially to consult on research staff needs and pilot provision. The additional driver of the Concordat for the Career Development of Researchers was not launched until 2008.

By 2009, 30-35% of HEIs were reporting extensive provision for research staff. Those reporting partial provision remained the same at 20%-25%, while reference to general staff training fell to 15%-20%. Those not reporting or declaring no provision had fallen to 20%-25% (108).

As a consequence of this less developed provision, the evaluation and the assessment of the impact of provision for research staff is also less well developed than for postgraduate researcher provision. However, there is strong evidence that provision is improving on the ground for research staff.

'Most respondents believe that they are being encouraged to consider their career development and feel able to talk to their manager about this. The availability and take-up of training and development activities appears to be rising'.

Careers in Research Online Survey, 2009 (110)

There are 48 examples of evidence within this report that relate to career development support for research staff. The University of Cambridge (46) and Loughborough University (20) have noted an increase in research staff looking for career advice and taking action. Vitae Scotland and Northern Ireland Hub 'Broadening horizons' (115) collaborative workshop for research staff reported more proactive career focus and active searching by participants for alternative employment options. The White Rose University Consortium (105) 'Making your impact in academia' gained similar feedback, for example, 'it's made me realise I need to be more strategic, pro-active and take ownership of my career path'. The University of Leeds (66) evaluation of 'Planning Your Life and Research Career' included feedback of participants undertaking career planning and researching possible careers. The University of Oxford (85) has had great success in researchers gaining employment in medical writing. The University of Edinburgh (51) researcher-led initiatives have led to proactive career management. University of Bath (40) experience with career interviews has led to research staff being clearer about their career paths.

'The course was an eye-opener in terms of research careers and gave me an insight into which paths I could take in the future.'

Newcastle University, Researchers' Summer School (29)

¹⁵ All these results are indicative. The open question format of Roberts reporting did not allow a direct comparison of 2004 and 2009 reports, for example if provision is not reported, it cannot be assumed to be missing.

3.1.4 Culture Change

The Roberts agenda has clearly changed the culture in UK institutions. In an Imperial College (14) survey of 'late-stage' postgraduate researchers, 91.5 % indicated they understood the benefits of transferable skills training. Liverpool John Moores University (17) applying the findings of PRES to guide developments have reported improvements in culture.

'I thought I'd hate it but it was fab! Thanks for changing my mind'

University of Liverpool, first year PhD skills workshop (75)

'I was rather sceptical about this course, but it has actually proved to be one of the most valuable courses I have attended. It has made me more aware of myself as an individual, a team player and a potential employee!'

Loughborough University, GRADSschool(22)

Evidence of cultural change is also apparent in supervisors' views of the value of researcher development. Supervisors at the University of Exeter (54) expressed very positive views towards the generic skills agenda. In a University of Cambridge supervisor survey '87% of responding supervisors saw value in formalised training of research skills, 64% in training of generic skills and 67% in career development'. The Cardiff University (6) supervisor survey reported they had encouraged their postgraduate researchers to attend skills training. In a King's College, London (16) evaluation the view was expressed that, "training courses complement supervision by providing aspects that supervisors don't have the time to provide.'

There is emerging evidence of increased awareness amongst employers of the skills of researchers, as in the Vitae survey of employers (112) and the University of Cambridge evaluation of multiple programmes(45).

Finally, an independent review of the impact of Vitae from the perspective of national and international stakeholders (118) found that the UK is benefiting from a reputation for being world-leading in providing professional and career development for researchers.

'Vitae is a unique and valuable organisation whose work has placed the UK into a leadership position in the area of researcher development'

Stakeholders' views of the impact of Vitae, 2010 (118)

3.2 Economic impact and employability

The importance of a supply of highly skilled researchers to sustain and build the UK research base and drive the economic prosperity and international competitiveness of the UK is well recognised. The UK Research Councils are committed to enhancing the quality and output of the UK research base through training the next generation of world-class researchers¹⁶.

The Worry Report² recommended that to contribute to the economic impact of researchers the UK Research Councils should:

- 'expand incentives for researchers to participate in knowledge transfer
- foster the development of partnerships between research groups in the UK and overseas centres of excellence
- encourage and reward two-way secondments between the research base and business
- encourage the universities to make enterprise training widely available for researchers in all disciplines.'

Worry, Increasing the Economic Impact of Research Councils, 2006

In terms of economic impact many institutions report programmes for enterprise training and success in building or supporting businesses. The University College London (35) programme makes reference to support to ten new businesses. The York University and University of Leeds Enterprising researcher (104) reports two businesses started. Loughborough University and the University of Nottingham (19) report rolling out a spin-out company. In total the case studies make reference to thirteen businesses. Other evaluation case studies make reference to researchers looking at commercialising their research e.g. (12), (55). This in itself constitutes a considerable return on investment in Roberts funding and economic impact over a relatively short period. Given the significant lead-time for business start-ups it is likely that this will only increase in the future.

A further significant indicator of return on investment of public funding relates to the influence of training and development activity on improved time to submission and submission rates suggested by the data analysis of Newcastle University (30) and the University of Leeds (61). Newcastle University Faculty of Humanities and Social Sciences has been tracking the research degree outcomes of the 2004 cohort of full time PhD researchers. 63% of researchers who engaged with the training programme have submitted, whilst only 38% of those who have not engaged have submitted. The University of Leeds study analysed the PhD outcomes of the October 2005 cohort of full time PhD researchers. An example finding is that 93% of those who attended the Project Managing Your Research Degree workshop had submitted their PhD by June 2009 compared with 65% for those that did not attend.

An example of the development of wide ranging international partnerships is the World Universities Network Research Mobility Programme (72)¹⁷. A number of impacts of the programme are given in this report, including the development of long-term research partnerships and networks, step-wise career development and international student recruitment.

¹⁶ RCUK Research Careers and Diversity Strategy www.rcuk.ac.uk/rescareer/strategy.htm

¹⁷ www.wun.ac.uk/mobility

3.2.1 Employability

Enhanced employability is an important factor in indicating economic impact. Researcher development programmes, as evidenced by this report, develop a wide range of skills of value to researchers in terms of their future employability. Direct impact on employability can be difficult to evaluate, particularly in the relatively short time frame since the Roberts report.

Within this report the following examples of impact have evidence of employment directly attributed to training and development activity: Leicester University (74), University of Nottingham (84), University of Leeds (62), University of Sheffield (93), Newcastle University (31) University of Cambridge (45), University of Oxford (85), University of Bath (40), University College London (37) University of York (103) University of Manchester (77) and Loughborough University (20).

'What do researchers do? Doctoral graduate destinations and impact three years on', 2010 (114) is the latest phase of the RCUK 'Doctoral Careers Pathways Study'¹⁸. This Vitae publication, based on the longitudinal DLHE survey of doctoral graduates approximately three and a half years after graduation, explores how employers and doctoral graduate employees are benefiting from the application of their skills in employment in and beyond HE. There is strong evidence that doctoral graduates are applying their knowledge, skills and experience, being innovative and making a difference in employment across a wide range of occupations. Respondents report that doctoral study has enabled them to develop fulfilling careers, enhance their social engagement and improve the quality of their lives.

These findings are supported by analysis of the individual career stories within 'What do researchers do? Career stories of doctoral graduates', (113), which demonstrate the value of the doctoral experience to their employability.

'I use the management, writing, presenting and problem solving skills that came with [the doctoral experience] every single minute. I also use the reserves of resilience and resourcefulness that being a researcher breeds. The ability to weigh up a big problem and deal with it in bits is highly prized in certain sectors.'

'What do researchers do? Career stories of doctoral graduates', 2009

3.3 Impact on research practice and outcomes

This report provides multiple examples of the impact of researcher development activity on research practice and outcomes.

With respect to research staff, the University of Leeds (64) has had success with their grant writing programmes; Victoria University (120) reports an increase in grant funding success; The University of Edinburgh (50) reports attribution of success in funding and publishing to training and development activity; The University of Sheffield (93) has seen an improvement in fellowship awards; The White Rose University Consortium (105) and Loughborough University (23) report benefits to publication of training activity; The University of Southampton (96) provision in

development of specific software skills reported improvement in research, 'this two day course will likely have saved me several months in my future work'.

With respect to postgraduate researchers, the University of Bath (42) reports improvements in a number of areas, for example, the management of research projects; the University of Glasgow (56) reports better planning of doctoral projects; the University of Reading reports better organisation of research activity (89); from 'Effective researcher' activity Heriot Watt University (11) reports 70% of respondents stated the course helped them perform better in research; an independent evaluation of the Vitae 'Effective researcher' (111) reported improvements in participants' research; at the University of Leeds (65) training in a specific software package has led to reported benefits to research, 'The [] training has totally changed the way and my approach to qualitative research data analysis...';

Bangor University (2) reports increased understanding of thesis examination; the University of Glasgow (57) reports a participant view of impact as an increase in speed of writing up their thesis; Brunel University also reports positive impact on thesis writing (4) as does the University of Reading (91); at the University of Leeds (70) participants reported that speed reading skills developed will be beneficial to their research practice; Durham University (8) has demonstrated improvement in finding information skills; Newcastle University (27) has reported benefits to publication of training activity; the University of Essex (52) reports impact on publication.

The University of Nottingham (84) reports positive impact of skills learnt for research from their placement programme and a positive effect on successfully obtaining funding for a further project at the end of a placement; Newcastle University (30) and the University of Leeds (61) report positive outcomes on PhD submission rates and time to submission respectively.

3.4 Impact on researchers

3.4.1 The researcher experience

This report evidences many significant positive experiences of researchers in respect of researcher training and development activity, at an individual workshop level, programme level and nationally.

Analysis of the results of the Postgraduate Research Experience Survey (106) has demonstrated increasing satisfaction with skills provision. Liverpool John Moores University (17) has used PRES findings to guide development leading to positive reactions from researchers in relating to experience in terms of improvement in space, support culture, ambience etc. Cardiff University (5) and Durham University (10) have found positive correlations relating to postgraduate researchers doing needs analysis that leads to development activity and the research student experience. Imperial College (14) found positive reactions to training from researchers reflecting on experiences at the end of their study.

¹⁸ Building Evidence of Researchers' Impact 'Doctoral Careers Pathway Study' www.rcuk.ac.uk/rescareer/rcdu/impact.htm

There are examples of activity improving relationships between researchers and supervisors eg the Vitae Effective researcher independent evaluation (111). The University of East Anglia reports the supportive impact on international postgraduate researchers of their team work activity (48). The University of Leeds reports improvements in confidence, motivation and focus from research staff participants in their 'Springboard' programme (71).

'Fantastic experience which I still reflect on now, sometimes it's easy to forget what you learned but then you realise what you achieved and what you've learnt about yourself'.

University of Reading, GRADschool (87)

'It really made me think about my options and gave me loads of info I didn't really know. It was just what I needed at this stage of my career.'

White Rose University Consortium, Making Your Impact in Academia (105)

'This was an excellent workshop. It was aimed at people right at the start of their academic career, which was the perfect time. It really made me think about my future and the options available to me.'

Newcastle University, Researchers' Summer School (29)

The broadening of outlooks and the experience of meeting people outside the immediate research area are demonstrated through a number of examples in this report where training and development activity has led to increased and enhanced outreach activity; University of Southampton (97), Institute of Cancer Research (15), University of Sheffield (93), University of Nottingham (83), and University of Dundee (47).

There are also examples where participants have applied skills learnt and then gone on to have attributed successes in communication; University of Manchester (81, 78) and University of Leeds (67).

'I found the [Presentations Skills workshop] to be very useful as while being able to practise my skills, I received very valuable structured feedback from other participants. This helped me realise that what I had initially considered to be my problem was in reality not something I should worry about and that I should concentrate instead on other aspects of presenting, such as pace and voice levels. Without the feedback I would have never realised the mistakes I had been making previously. The workshop also helped me a lot to be more open in communicating with the audience and making eye contact.'

Essex University (52)

3.4.2 Personal development of researchers

Throughout the case studies the many positive quotes from researchers clearly indicate significant strides in their personal development. A number of institutions have taken a 'before and after' approach in evaluation demonstrating the distance travelled by cohorts in personal development directly attributable to activity; University of Reading (86, 88, 89, 90, 91); University of Leeds, speed reading (70).

Researcher training and development activity is capable of far deeper personal development than improvement in various skills:

'This course has been unarguably one of the most difficult and uncomfortable things I have done in my career to date, but it is also without doubt one of the most useful and rewarding and I would recommend it to all researchers.' 'This course has changed my life'.

University of Bath, Leadership research and you (41)

'The event was actually life changing for me and made me question the way I am thinking about my future career so it definitely benefited my development.'

Loughborough University and University of Nottingham, Engineering Young Entrepreneurs Scheme (19)

Perhaps it is fitting to leave the final word on the transformative nature of researcher development to researchers themselves.

Dr Elena Martin (9) describes the impact researcher development had during her doctoral study in the Department of Theology and Religion, Durham University in a personal case study. Extracts from her story include:

- **'when I began my PhD at Durham I had to complete a Training Needs Analysis. I found that this was a really useful experience because it helped me to become more aware of my strengths and weaknesses. It also helped me to adopt a more reflective and introspective approach to my personal and professional development. I came to realise that there was a wide range of opportunities available to help me improve my skills.'**
- **'the workshops on teaching in higher education also helped me to become a reflective practitioner, and supported me through the process of becoming a Fellow of the Higher Education Academy.'**
- **'training in generic skills areas, such as project management and time management, helped me to manage my research project and complete my thesis on time.'**
- **'the generic skills training that I received was inspirational and empowering.'**
- **'I believe that training also helped me develop my employability skills.'**

- 'I learnt that, by doing a PhD, I had not only acquired in-depth knowledge of my particular research area, but I had also developed a wide range of transferable skills. This helped me to realise that I did not need to limit my career aspirations to an academic career; I had gained skills that would be useful for a much wider range of career paths.'

A member of research staff at the University of Sunderland (102) provided reflections on their learning and behavioural changes as a result of training provided by north-east universities following a needs analysis:

- project management 'The course provided me with a greater awareness of how to organise any project: a literature review; development of key skills and knowledge; construct the course; conduct a pilot study; conduct a large scale study; find any holes in the data; fill the holes; close the project; and write a final report for others to read. In future, there will be fewer uncertainties and thinking required when planning projects. This should increase my efficiency in managing projects.'
- time management 'As a result of this course I have made significant changes to my own time management. I have more recreation time in my schedule, so I feel less tired and my work is more sustainable and more balanced as a result.'
- rapid reading workshop 'My information retrieval skills have improved dramatically as a result of this course, as I now find and note important information more quickly than before, thereby providing more time to think and write about what I have learnt'.

4 Future work

Sector engagement in evaluating the impact of researcher development does not stop with the publication of this report. HEIs and organisations also submitted examples of work in progress or planned. This report does not claim to be a comprehensive study of all impact evaluation work across the sector, but this brief summary of activity that contributors were able to share with the sector does illustrate the range of ongoing activity.

Activity in evidencing the impact of researcher development continues at a UK level. Vitae is currently leading on the third phase of the RCUK 'Doctoral Careers Pathway Study'¹⁸. This will follow up, through a qualitative study, a sample of the respondents to the longitudinal DLHE, three and a half years after graduation. It will explore the demonstrable impact that excellent researchers make to society and the economy. The Careers in Research Online Survey (CROS) Steering Group is working with the Concordat Strategy Group to develop a complementary and compatible survey to CROS, the Principal Investigators and Research Leaders Survey (PIRLS), as part of benchmarking activities relating to the implementation of the Concordat to Support the Career Development of Researchers¹⁹. This survey will explore the views and perceptions of grant holders on managing and developing research staff.

During 2010/11 the Research Staff Task Group of the Association of Graduate Careers Advisory Services (AGCAS) will be evaluating the impact of individual careers guidance for research staff provided by careers services offering specific support to this group of researchers. Evidence will be collected from across the AGCAS network, with the aim of being able to provide a national perspective on this type of careers support.

At the regional level, Vitae's Scotland and Northern Ireland Hub plan to build on their evaluation of a 'Broadening horizons' workshop (115), by undertaking a three-month follow up and evaluating subsequent workshops. The Hub will be running and evaluating a part-time researcher conference with around 150 participants taking place in September 2010.

Within HEIs, a number of studies are planned looking at activities for both postgraduate researchers and research staff. Loughborough University will be evaluating their Engineering YES (19) activity in depth, including interviews with 2010 participants. They also plan to gather further case studies of researchers' experiences and longitudinal studies of specific workshop activities. The University of Edinburgh will be evaluating the impact of their 'Enterprise and Business Skills' course for both postgraduate researchers and research staff. They will be considering participants' self-efficacy and entrepreneurial intent.

Further studies at HEIs will be considering activity targeted solely at research staff. The University of Oxford will be evaluating the impact of two tailored personal and professional development programmes for research staff: Springboard (for women) and Navigator (for men), through qualitative data gathered at six-month post course reunions. The University of Dundee has recently launched an on-line survey for research staff nearing the end of their research contracts. A number of early career researchers have agreed to have their careers tracked, including examples of researchers moving out of academia. The University of Manchester will be conducting exit interviews for research staff, which will include reflections on the impact, potential gaps or improvements for training and development activities. This will be part of a bigger programme of internal surveys developed to capture experiences and views of research staff, research students, supervisors and principal investigators.

With respect to activity relating solely to postgraduate researchers, the University of Edinburgh will be evaluating their online 'PG Essentials' course, particularly exploring the longitudinal impact of the online activity over the course of the research degree for an activity that is experienced at the beginning of the doctoral study. Newcastle University plans to build on their research into doctoral outcomes (30) with a further postgraduate researcher cohort study looking at benefits of training and development activity on doctoral outcomes. The University of Leeds plans to build upon their cohort data analysis (61) and examine the data for additional cohorts of postgraduate researchers, considering the relationships between participation in training and development activity and doctoral outcomes.

¹⁹ Concordat to Support the Career Development of Researchers www.researcherconcordat.ac.uk

5 Conclusions and recommendations

This report demonstrates for policymakers, funders and HEIs, the wide-ranging and significant impact of researcher development activity. Return on investment considerations indicate that it is more cost effective to invest in researcher development than not to invest. This is demonstrated through just two specific examples alone: the creation of new businesses and improvements in doctoral submission rates and time to submission. Additional analysis of the contributions of many other activities is likely only to increase the return on investment.

There are significant impacts on the employability of researchers, their personal and professional development and cultural change in higher education institutions. Researcher development provides a key enabling link from knowledge creation to pathways to impact. Researcher development is clearly a crucial component in not only realising the potential of researchers, but also realising the potential of research and maximising the outcomes of research funding. In these difficult economic times, continued investment in researcher development is essential in ensuring the return on investment in research is maximised for all stakeholders.

Recommendation 1: To guarantee the continued economic prosperity of the UK; Government, funders and HEIs should ensure that researcher development remains a priority and there is continued and appropriate investment.

To date the significant progress that has been made in researcher development has been achieved predominantly through a dedicated group of professional development providers, academics and other colleagues, drawing upon their own research and broader experiences, and the sharing of ideas and practice.

This excellent platform should be built on by further academic research into the professional development of researchers. This has the potential to provide the next step change in enhancement of provision and the potential to further provide a distinct, innovative and internationally leading research experience for UK HEIs.

This report includes a number of published research papers (8, 13, 14, 76,) in what is an emergent research field. This is to be commended and should be supported. Potential research areas suggested by this report include:

- further understanding the relationships between training and development activity and improved doctoral submission rates and time to submission (section 3.2)
- further understanding the relationships between training and development activity and enhanced research practice and outcomes (section 3.3)
- the long term relationships between researcher development activity and economic impact. This report offers a number of opportunities to longitudinally track specific groups and their economic impact in the areas of new business generation and employment of researchers (section 3.2.1)
- baseline studies building on and perhaps adding to existing work (section 3.1.1). This would establish a baseline position for researcher development ahead of potential changes in funding modes beyond Roberts 'ring-fenced' funding.

Recommendation 2: The growth of research into researcher development activities should continue to underpin the enhancement of pedagogy and practice to take the sector forward in realising the full potential of researchers and researcher development.

This report necessarily provides only a summary of the information gathered from across the sector. In many cases there is more detailed information available and also opportunity to provide a richer picture of findings by bringing together findings from related impact evaluations at different institutions for further analysis. This would better clarify and define potential research areas for further investigation.

There is also opportunity to consider how best to further use and/or publicise the findings of this report and the case study material. For example, there are emergent messages of cultural change within HEIs, particularly evidenced through the views of supervisors. Communicating the findings of this report, and relevant case studies, to supervisors, principal investigators and senior managers within HE could further support this cultural change.

Recommendation 3: The case studies in this report should be further analysed to enhance these findings and to consider how best to promote and communicate the impact of researcher development more widely.

The existence of the Impact and Evaluation Group, the Impact Framework, and the case studies in this report demonstrate the collaborative, collegiate approach of the researcher development community. Initiated and underpinned by the activities of Vitae, all stakeholders benefit from sharing training and development practices (section 3.1) and the emerging practice of evaluating the impact, as illustrated in the case studies and findings in this report.

Recommendation 4: National and regional mechanisms for sharing of practice, resources and expertise relating to the evaluation and impact of researcher development should continue to be supported and used.

Recommendation 5: Higher education institutions should consider the wide range of impact examples provided in this report with a view to enhancing practice and integrating evaluation into their provision where appropriate.

Case studies in this report reference emergent change in non-HE employers' awareness of researcher skills (section 3.1.4). However, the volume of evidence is relatively small in terms of the evidence available to support other themes highlighted in the report. This suggests an area for further investigation and also further work in terms of raising awareness with employers of the broad range of skills developed by researchers and their potential impact.

Recommendation 6: Additional research should be undertaken to evidence the value of researchers' skills to non-HE employers and to further promote awareness.

Table 1: Mapping of completed evaluation projects against the Impact Framework

Key

Projects are listed in alphabetical order and numbered. Numbers appear highlighted in bold in the text of this report where the respective example of evidence is discussed. Contributions of impact from UK HEIs are listed first followed by contributions from national organisations and finally, non-UK HEIs.

✓ signifies that a project has identified evidence of impact at the indicated evaluation level.

Provision for postgraduate researchers is marked **PGR** and for research staff **RS**

Key impacts for each case study are indicated as follows:

P: researcher development provision (section 3.1)

I: economic impact (section 3.2)

E: employability (section 3.2.1)

R: impact on research practice and outcomes (section 3.3)

X: the impact on researchers (section 3.4)

	HEI Case studies	Audience	Impact area	Level					Key impacts	
				0	1	2	3	4		
1	1994 Group Impact of Roberts funds at 1994 Group institutions	PGR/RS	P	✓					✓	Multiple impacts reported including: motivated engagement of researchers with skills development; enhanced support for supervisors and principal investigators; facilitated better inter- and intra-university collaborations; stimulated researcher-led innovations; broadened employer engagement and researcher-specific careers advice.
2	Bangor University PRES findings	PGR	R		✓	✓				An improvement in the understanding of thesis examination amongst postgraduate researchers in respect of the 2007 findings (3% above the sector in 2009 compared to 7% below in 2007).
3	BHR Associates independent review at a Russell Group university	RS	P	✓						Research staff participants had little work experience outside academic roles since PhD completion and had ambitions for academic careers. Average ratings for current skills levels fell short of the levels thought to be required for intended job roles, including such aspects as project/time management, organising skills and communication.
4	Brunel University Thesis Writing workshop	PGR	R	✓	✓	✓				'It really made me understand what a thesis is all about!'
5	Cardiff University PRES findings	PGR	X	✓	✓					A significant positive relationship expressed by researchers between measures of participation in needs assessment and their overall experience of the research programme.
6	Cardiff University Supervisor survey and attendance data analysis	PGR	R, P	✓	✓	✓	✓			A large majority of supervisor respondents say they have encouraged their students to attend research skills training (77%) and transferable skills training (67%).
7	Durham University Enterprise	PGR	E	✓	✓	✓	✓			New skills were learnt or existing ones brought to the fore and [participants] recognised that such skills are prized by employers, especially in the current difficult job market where competition for places is very high.
8	Durham University Finding and Managing Information	PGR	R	✓	✓	✓				Generic information literacy and management skills for postgraduate researchers. Improvement in information literacy confidence and skills in searching for information and EndNote.
9	Durham University PhD Graduate case study experience of training and development activity	PGR	E R X	✓	✓	✓	✓	✓		'Training in generic skills areas, such as project management and time management, helped me to manage my research project and complete my thesis on time.'
10	Durham University PRES findings	PGR	X	✓	✓					Increasing participation in needs analysis and increasing satisfaction in terms of research training needs being met and the training programme as a whole.
11	Heriot-Watt University Effective researcher	PGR	R X		✓	✓	✓			Increases in participants' perceived levels of skill in assertiveness, leadership, problem solving, project planning and communication. In an online survey 70% of respondents reported the course helped them to perform better in research

	HEI Case studies	Audience	Impact area	Level					Key impacts
				0	1	2	3	4	
12	Heriot-Watt University Enterprising researcher	PGR	E I R	✓	✓	✓	✓	✓	30% of respondents indicated that they were involved in enterprise or commercialisation projects since attending the summer school. 'I am commercialising the results of my research.'
13	Imperial College London Skills Perception Inventory (SkiPI)	PGR	P X	✓	✓	✓			Skills areas addressed include group work, communication, skills planning, project management and personal awareness. Following the workshop, statistically significant increases in participants' perceived skills levels in each area of the inventory were demonstrated, as was a more positive attitude to skills development courses overall.
14	Imperial College London Transferable skills development programme evaluation	PGR	R P X	✓	✓	✓	✓		...most [late stage] students report a positive impact from having taken part in transferable skills initiatives and that they have a positive attitude towards them. Participants report an enduring positive impact on their behaviour and consider that the training meets their perceived needs as they progress as researchers.
15	Institute of Cancer Research Science Communication	PGR	X	✓	✓	✓	✓	✓	An increase in outreach and fund raising activity and more volunteers on waiting lists. Supervisors reported positive feedback in terms of improved presentation skills.
16	King's College, London Programme evaluation	PGR	R P	✓	✓	✓	✓		'Training courses complement supervision by providing aspects that supervisors don't have the time to provide.'
17	Liverpool John Moores University PRES findings	PGR	P X	✓	✓				Implementing PRES findings had an impact on the postgraduate researcher experience.
18	Loughborough University Analysis of end of workshop feedback questionnaire 'archive'	PGR/RS	P X	✓	✓	✓			85% would recommend the event to a colleague, 80% indicated increased learning.
19	Loughborough University and University of Nottingham Engineering Young Entrepreneurs Scheme (YES)	PGR/RS	E I P X	✓	✓	✓	✓	✓	'We are just on the verge of rolling out a spin-off company. [Engineering YES] has had a major impact on the work I'm doing right now.'
20	Loughborough University career and employability advice for research staff	RS	E	✓	✓	✓	✓	✓	'Just a quick e-mail to let you know that I got that lectureship position in the Department of X... Thanks a lot again for your help and advice.'
21	Loughborough University Effective researcher	PGR	R X			✓	✓		'This has improved my confidence both as an individual and member of a team.'
22	Loughborough University local GRADschool	PGR	P			✓	✓		'It has made me more aware of myself as an individual, a team player and a potential employee!'
23	Loughborough University mentoring scheme	RS	R	✓	✓	✓	✓	✓	Papers, both national and international, accepted and presented.
24	Loughborough University PhD researcher case study reflections on training and development activity	PGR	X	✓	✓	✓	✓	✓	'One of the real benefits has been that [training and development] helped me understand the importance of the research as a process as well as the result.'
25	Loughborough University Real Creativity	PGR	R	✓	✓	✓	✓		'The course has considerably altered my behaviour both professionally and personally. The tools and lessons learnt have impacted the way I go about my research.'
26	Loughborough University Successful Teaching and Assessment for Research Staff	RS	E	✓	✓	✓	✓	✓	Participants noted 'greater awareness of teaching methods, learning approaches and the importance of feedback.' One participant has got a lecturing post.

The impact of researcher training and development: two years on

	HEI Case studies	Audience	Impact area	Level					Key impacts
				0	1	2	3	4	
27	Newcastle University Postgraduate researcher development programme	PGR	R	✓	✓	✓	✓	✓	39 of the 88 postgraduate researcher 2006 cohort have already been able to publish work. 72% of those who have been published have benefited from training in research methods, academic writing or both.
28	Newcastle University Programme review	PGR	P	✓	✓	✓	✓		'I have attended a good selection of PGRDP workshops. I feel my general skills as a researcher have improved as a result.'
29	Newcastle University Researchers' Summer School	RS	E R P	✓	✓	✓	✓		'The course was an eye-opener in terms of research careers and gave me an insight into which paths I could take in the future.' 'It made me feel more motivated to work harder and focussed me on how important writing papers are. I also think a lot more about my future.'
30	Newcastle University training and development programme.	PGR	I R	✓	✓	✓	✓	✓	63% of researchers who have engaged with the training programme have submitted, whilst only 38% of those who have not engaged have submitted.
31	Newcastle University Transitions programme	RS	E R	✓	✓	✓	✓	✓	Many participants now employed in a range of jobs. 'I found the Transitions Programme an extremely comprehensive course in how to search for a new job. I didn't really know what lay outside academia apart from R&D for a post-doc. The advice on non-academic CVs and interviews was very eye opening.'
32	Queens University Belfast Management and Leadership	RS	X	✓	✓	✓	✓		'I learnt the importance of communication to be an effective manager. Being in academia we do get heavily involved in the subject matter. This course drew my attention on people skills and management.'
33	Queens University Belfast Training Needs Analysis	RS	P	✓					Career development, project management and funding training were identified as clear training and development priorities for research staff.
34	Swansea University Information literacy	PGR	R P	✓	✓	✓	✓		Postgraduate researcher self-perception of information literacy skills is not always reliable in determining training needs.
35	University College London 'Advances' enterprise skills	PGR	I	✓	✓	✓	✓	✓	'The provision of business training at UCL has been excellent - this was one of the main reasons for choosing UCL for my postgraduate study.'
36	University College London Longitudinal survey of PhD graduate destinations and the impact of Roberts funded training and services	PGR	E	✓	✓	✓	✓	✓	Current role, project manager for a health charity: Catherine attended a Graduate School residential course that developed many of the transferable skills she uses today. She also took part in other management courses.
37	University College London Personal and Professional Management Skills	PGR	E R	✓	✓	✓	✓	✓	'My academic supervisor at the time could see significant benefits to my work from engaging in the programme both as a participant and as a facilitator' 'I was employed in my current job as a result of having done the courses.'
38	University College London Research Staff Peer Mentoring	RS	E R	✓	✓	✓	✓		'The confidence I've gained from this programme has helped me to see myself as a more senior researcher at work and also allowed me to apply for a new job as a Departmental Lecturer - I doubt that I would previously have seen myself as being capable of this sort of position for a number of years.'
39	University College London Skills development in MRes Programme	PGR	E R	✓	✓	✓	✓		'I think that the module is so important that it should become compulsory for every single student because education or experience are not enough for becoming a professional.'
40	University of Bath Career development interviews	RS	E	✓	✓	✓	✓	✓	Feedback has been received from researchers who have subsequently gained employment acknowledging the help from the careers advisor in their achievement.
41	University of Bath Leadership research and you	PGR/RS	X	✓	✓	✓	✓		'This course has changed my life.'

	HEI Case studies	Audience	Impact area	Level					Key impacts
				0	1	2	3	4	
42	University of Bath PG Skills Training Report	PGR	R	✓	✓	✓	✓		97% of participants satisfied with course. Long term evaluation: 87% had applied what they learnt to their research or personal development.
43	University of Bath Supervisor survey (STARRS)	PGR	P	✓	✓				Survey provides supervisor perspective of the enhancement in provision due to Roberts funding at the University of Bath.
44	University of Birmingham Volunteering placements	PGR	E	✓	✓	✓			The placements develop wide-ranging skills including skills development in communication, time management and teamwork.
45	University of Cambridge Evaluation of multiple programmes	RS	E R P X	✓	✓	✓	✓	✓	'Some employers reported that they were seeing a greater appreciation of the business environment from new employees.'
46	University of Cambridge Research Staff Careers Programme	RS	P	✓			✓		Internal School of Physical Sciences research staff survey (Nov 2008): over 50% of respondents agreed or strongly agreed with the statement, 'I have taken action for my career as a result of engaging with the [research staff] careers programme.'
47	University of Dundee Postgraduate researcher and research staff programmes	PGR/RS	X	✓	✓	✓	✓	✓	Student attended training for a specific purpose and as a result won the best poster prize at a Scottish Developmental Biology Group Meeting and went on to win best poster at one of the Wellcome Trust Poster events for final year Wellcome students.
48	University of East Anglia Dynamics of Team Learning	PGR	X		✓	✓			Activity was supportive to international postgraduate researchers who have English as a second or other language. Over seventy percent of postgraduate researchers reported an improvement in four or more skill areas.
49	University of Edinburgh PG Essentials	PGR	X	✓	✓	✓			70% of those surveyed felt they had increased understanding of the PhD milestones and expectations as a result of taking part.
50	University of Edinburgh Programme evaluation	RS	E R	✓	✓	✓	✓	✓	Outcomes include: application for and success in obtaining research funding, development of career plans and application for jobs, writing and publishing of papers.
51	University of Edinburgh Researcher led initiative: research staff societies and project funding	RS	E P			✓	✓	✓	There is an emphasis on themes relating to professional and career development, with researchers being helped to take responsibility for their own careers through local awareness raising and context setting
52	University of Essex Success Stories	PGR	X R	✓	✓	✓	✓	✓	'Looking back I feel that the course I attended was very valuable. It alerted me to the possibility of getting some of my work published. The varied things I have become involved with have added to my experience and as well as sustaining my motivation, they will hopefully enhance my career prospects too.'
53	University of Exeter Postgraduate researcher development programme evaluation	PGR	ER	✓	✓	✓	✓	✓	There appears to be a general understanding of the increasing significance of skills and their relation to employability - 'I only realised how much I've learned through interacting with colleagues who hadn't attended these sessions.'
54	University of Exeter Supervisor survey	PGR	E R P	✓	✓				91% of respondents thought a generic skills agenda to be important and 92% stated that they discussed the generic training with their postgraduate researchers as a matter of course.
55	University of Glasgow et al. Enterprise and Entrepreneurship	PGR/RS	I P	✓	✓	✓	✓		'I am thinking more careful about the research I am doing and also look for niches where things might be able to be commercialised in the future.'
56	University of Glasgow 'Effective researcher'	PGR	R		✓	✓	✓		'...learnt to present to other subject areas and minimise use of jargon.' 'Really enlightening to consider how I work with my supervisors and I have a better relationship with them as a result of this. More proactive in own work and now more confident in the way I work.'
57	University of Glasgow GRADschool follow up	PGR	E R	✓	✓	✓	✓	✓	'Speeded up thesis writing incredibly.' 'I am now aware of skills I didn't realise I have - I am more than my PhD and I can sell that to others.'

	HEI Case studies	Audience	Impact area	Level					Key impacts
				0	1	2	3	4	
58	University of Glasgow Postgraduate leadership programme	PGR	ER	✓	✓	✓	✓	✓	'In two weeks I start a new job as Web Commissioning Editor for the Transport Museum. I also had my PhD viva last Friday and passed with some minor changes. Thanks for all the training. I really found it very worthwhile'
59	University of Huddersfield Pecha Kucha	PGR	P	✓			✓		Vitae regional hub activity leading to further activity in regional institution.
60	University of Leeds Comparison of 2008/09 attendance data with pre-Roberts position	PGR/RS	P	✓					In 2008/09 postgraduate researchers and research staff, there were approximately 9000 Roberts funded participants on programmes.
61	University of Leeds Comparison of training activity with PhD outcomes/time to submission	PGR	I R	✓				✓	Project Planning workshop - 93% of attendees completed their PhD before the end of June 2009 compared with 65% of non-attendees.
62	University of Leeds Employability	PGR	E					✓	'...I did the presenting your research to the public poster competition, which was the [Vitae] Y&NE Hub...and that led on to lots of other things...I can see that that was almost a direct route to my job.'
63	University of Leeds Foundation level review	PGR	P	✓					Strategic plan developed and implemented.
64	University of Leeds Grant writing	RS	R	✓	✓	✓	✓	✓	The outcome of 24 applications is currently known, eight of these have been successful totalling £2.23M, equating to a current success rate of 33%.
65	University of Leeds Nvivo training	PGR	R	✓	✓	✓	✓	✓	The NVivo training has totally changed the way and my approach to qualitative research data analysis.
66	University of Leeds Planning your Life and Research Career workshop	PGR/RS	E R P	✓	✓	✓	✓	✓	'Focusing more strongly on career planning' 'Researching fellowship opportunities', 'Writing a paper – as part of an ongoing publications plan' 'Focusing more strongly on how to balance time between family and research.'
67	University of Leeds Presentations research case study	PGR	X	✓	✓	✓	✓	✓	'...my success can be traced to my consistent effort to applying the skills I have learnt from the Faculty of Engineering "Make Some Noise" presentation training.'
68	University of Leeds Research Environment	PGR/RS	P	✓					A study considering more broadly the researcher environment, which in terms of evaluation provides important and broader information about the context in which researcher development has to operate. For example the emergence of a 'two-tier' contractual system in universities and the subsequent impact.
69	University of Leeds Researcher@Leeds	PGR	R X	✓	✓	✓	✓	✓	'Has a tangible outcome...you can build a website'. 'And the good thing about it is when you go on conferences and seminars it gives you somewhere to point people to, who can then find out everything about you.'
70	University of Leeds Speed Reading	PGR	R X	✓	✓	✓	✓	✓	Enhanced reading speed for participants. Participants indicated that this would enhance their research practice in respect of the required reading of large amounts of material in their research.
71	University of Leeds Springboard	RS	X	✓	✓	✓	✓		University of Leeds – 'I have become more focused and enjoy the job that I do.'
72	University of Leeds WUN Programme Research Mobility Programme	PGR/RS	I R	✓	✓	✓	✓	✓	Benefits include short term tangible research outputs, development of long term research partnerships, step-wise career development,internationalisation of research etc.
73	University of Leicester evaluation of multiple programmes.	PGR/RS	E R	✓	✓	✓	✓		Enabled participants to develop their knowledge, skills, and confidence with a strong feeling that attendance would be a major benefit for their research and employability.
74	University of Leicester One Step Beyond GRADschool	PGR	E		✓	✓	✓	✓	Achieving a better work-life balance. Direct attribution of the GRADschool to gaining employment.

	HEI Case studies	Audience	Impact area	Level					Key impacts
				0	1	2	3	4	
75	University of Liverpool First year skills workshops	PGR	R P	✓	✓	✓	✓		Positive feedback in areas of teamworking, interdisciplinarity, peer review, presentation, time and project management.
76	University of Manchester Development Needs Analysis	PGR	P	✓					Baseline study. The most significant needs were identified in areas of presentation, public understanding of research, commercialisation of research and research skills.
77	University of Manchester Faculty of Humanities programme evaluation	PGR/RS	E	✓	✓	✓	✓	✓	'I certainly feel getting this job has been a direct result of a well-managed research post with excellent opportunities and suggestions for development.'
78	University of Manchester Faculty of Medical and Human Sciences	PGR/RS	X	✓	✓	✓	✓	✓	'I just wanted to say thank you because I won the prize for the best presentation in my oral abstract session.' (Unsolicited participant feedback.)
79	University of Manchester Library EndNote training	PGR	R	✓	✓	✓			'I've finally finished inserting all my references now using the method you showed me!! thanks a lot for helping me out, and designing that reference output thing..!' (Unsolicited feedback.)
80	University of Manchester Pathways Interviews	PGR	P	✓					'The most useful skills I developed during my PhD are definitely those that can be transferred.'
81	University of Manchester Research poster workshop activity	PGR	X	✓	✓	✓	✓	✓	'Having been on their course I adapted my poster for [a UK national organisation] student poster competition. I am happy to say that I won the judge's vote in the competition.'
82	University of Manchester Time Management	PGR	R X	✓	✓	✓	✓	✓	'I have seen considerable improvement in the use of my time.'
83	University of Nottingham External evaluation of Roberts funded activities	PGR/RS	X	✓	✓	✓	✓	✓	Initiatives have had positive impact on researchers' transferable skills and led to attitude and behaviour changes. Positive contribution to capacity building within the institution and to strengthening engagement of the University with the local community and regional organisations.
84	University of Nottingham Placements Programme	PGR	E R	✓	✓	✓	✓	✓	'Increased confidence to make life decisions gained sense of direction applied for job with more confidence/better skills gained employment.'
85	University of Oxford Career Opportunities in Regulatory Affairs and Medical	PGR/RS	E P	✓	✓	✓	✓	✓	The course organisers are aware of at least 20 researchers who have taken up roles in the medical writing industry as a result of the programme.
86	University of Reading eSMS – Statistics made simple	PGR	R X	✓	✓	✓			Participants exhibited an average 44% improvement on their post-course test in comparison to the pre-course test.
87	University of Reading GRADschool 8 month follow up	PGR	E R X	✓	✓	✓	✓	✓	'Have started looking for jobs and preparing a paper, am attempting to make contacts where possible.....I have signed up for an outreach programme, as many employers like to see this.'
88	University of Reading How to get published	PGR	R X	✓	✓	✓	✓		'Make proper plans, use time more effectively, investigate journals more thoroughly.'
89	University of Reading Managing your research	PGR	R X	✓	✓	✓	✓		'Organise my literature and results better so that they are accessible when I write up.'
90	University of Reading Presenting conference Papers	PGR	R X	✓	✓	✓	✓		'Improve my way of presenting, planning in advance, feel confident.'
91	University of Reading Writing up your Thesis workshop	PGR	R X	✓	✓	✓	✓		'Really keen to go and make a plan for my PhD. Will really help me to write my thesis.'
92	University of Salford 'Effective researcher	PGR	X	✓	✓				'The experience was quite enriching, I must say.'

The impact of researcher training and development: two years on

	HEI Case studies	Audience	Impact area	Level					Key impacts
				0	1	2	3	4	
93	University of Sheffield Research Staff Programme evaluation	RS	E R X	✓	✓	✓	✓	✓	Improvements in fellowship applications, numbers obtaining interviews, and awards following the introduction of a 'Fellowship Career Day' and a coaching programme writing research for publication activity has supported researchers in improving their research publication record.
94	University of Sheffield, School of Medicine Research Staff Training Programme	RS	P	✓					Baseline study. Over 50% of the researchers had carried out their PhD at the University of Sheffield with little or no experience of employment elsewhere. Many of their perceived skills levels mapped against the joint skills statement were below average, compared with the expectations for anyone completing a PhD.
95	University of Southampton Communication in multicultural and international environments	PGR	X	✓	✓	✓	✓		'Learning how to prevent the risk of offending others and how to catch others' true meanings.'
96	University of Southampton Employin.LAB to foster interdisciplinary cooperation: a training programme for ECRs	RS	R	✓	✓	✓	✓		80% of those surveyed [said] they would now be more efficient in their work - 'This two day course will likely have saved me several months in my future work.'
97	University of Southampton Outreach	PGR/RS	X		✓	✓	✓	✓	A substantial number of participants applying for FESM [Faculty] funding for further outreach work and developing projects in the wider university.
98	University of Strathclyde Enterprise skills	PGR	P	✓					The need was highlighted for behaviours including intrapreneurship, cultural transition, switching between multiple mental models for technology and business, being multifunctional and multidisciplinary.
99	University of Strathclyde Researcher development internships	RS	R	✓	✓	✓	✓	✓	'Greater awareness of government directives for researcher development', 'Internal and external networking within the faculty, across the university and beyond.'
100	University of Sunderland Effective researcher	RS	R	✓	✓	✓			Participant views of key messages: clarification of priorities, time management, communication etc.
101	University of Sunderland Programme evaluation	PGR	R P	✓	✓	✓	✓		'The training environment has therefore improved dramatically as a result of the Roberts agenda.'
102	University of Sunderland Reflections on transferable skills	RS	R X	✓	✓	✓	✓		'As a result of this course I have made significant changes to my own time management. I have more recreation time in my schedule, so I feel less tired and my work is more sustainable and more balanced as a result.'
103	University of York Mentoring Programme	RS	E	✓	✓	✓	✓	✓	One mentee has successfully secured a permanent contract within her existing department, an outcome which she directly attributed to increased confidence in her position and negotiation skills.
104	University of York/University of Leeds Enterprising researcher	PGR/RS	E I P	✓	✓	✓	✓	✓	'With the skills I learnt and developed at the Enterprising researcher course I have since started two successful companies, both very commercially successful and...showing very promising growth.'
105	White Rose University Consortium (Leeds, Sheffield, York) Making your Impact in Academia	RS	E R P	✓	✓	✓	✓		3 month follow up post workshop revealed increased confidence/determination/enthusiasm for achieving an academic career. Several respondents had already achieved goals set on workshop after 3 months.
	UK National bodies	Audience	Impact area	Level					Key impacts
				0	1	2	3	4	
106	HE Academy Lessons from PRES 2007- 2009	PGR	P X	✓	✓				Rising levels of satisfaction for skills training and development.
107	Quality Assurance Agency Review of research degree programmes 2005-06	PGR	P	✓					'Good practice in many institutions reflected positive engagement with the skills agenda and was evidenced in the provision of cohesive, high quality, flexible and accessible programmes of research training.'

	UK National bodies	Audience	Impact area	Level					Key impacts
				0	1	2	3	4	
108	RCUK Analysis of HEI Roberts reports (2004 and 2009) for the Roberts Skills Panel, 2010	PGR/RS	P	✓	✓	✓	✓	✓	Analysis of university reports on career development and transferable skills training (Roberts) payments (2010). An analysis of a sample of 95 the 2009 institutional reports on the use of Roberts funding compared with their respective 2004 outline strategies provides a picture of the distance travelled by the sector over the five years. The report was an input to the Independent Panel reviewing the Roberts skills recommendations. Publication is anticipated during 2010.
109	RCUK Roberts reporting summary 2008	PGR/RS	P	✓					The collated figures for the 64 institutional reports that included staffing levels indicated that in 2007/08 a total of 533 were employed nationally on Roberts funding.
110	Vitae CROS Analysis of aggregated UK results, 2009	RS	P X	✓	✓				Increased availability and take-up of training and development activities.
111	Vitae Effective researcher independent evaluation	PGR	R P X	✓	✓	✓	✓	✓	'79% [reported] that their research had improved as a result of attending the programme.' 'Where the respondent's supervisor has shown an interest in the learning obtained from the programme the impact is greater'.
112	Vitae Recruiting researchers: Survey of employer practice, 2009	PGR/RS	E P	✓				✓	'There is a growing understanding of researchers amongst non-higher education employers in comparison with similar previous reports.'
113	Vitae What do researchers do? Career stories of doctoral graduates	PGR	E R X	✓	✓	✓	✓	✓	Assessment of the impact demonstrated in the Vitae What do researchers do? Career profiles of doctoral graduates in terms of the contribution of the doctoral experience and training on future employability.
114	Vitae What do researchers do? Doctoral graduate destinations and impact three years on	PGR/RS	E I P X	✓	✓	✓	✓	✓	How employers and doctoral graduates employees are benefiting from the application of their skills and experience three and a half years after graduation in employment in and beyond HE. How doctoral study has enabled doctoral graduates to develop fulfilling careers, enhance their social engagement and improve the quality of their lives.
115	Vitae S&NI Hub Broadening Horizons	RS	E P	✓	✓	✓	✓	✓	Positive impact on research staff, leading to participants being pro-active in seeking career opportunities, changing CVs and their approach to employers.
116	Vitae S&NI Hub 'Effective researcher'	RS	R P	✓	✓	✓			'More pro-active in talking to other researcher, aiming to collaborate.'
117	Vitae Y&NE Hub 'Careers in Academia'	PGR	E P		✓	✓			'Really practical and valid advice – it has made me consider approaches much more thoroughly and constructively.' The CV and interview workshops [were] useful regardless of future career.'
118	Vitae Stakeholders' views of the impact of Vitae and its activities	PGR/RS	P X	✓	✓				An independent review of Vitae and its activities through 55 semi-structured interviews with international and UK stakeholders. A key outcome is the view that the UK is benefiting from a reputation for being world-leading in researcher development, both in attracting researchers to the UK and benefiting from better trained, more innovative researchers.
	Non-UK HEIs	Audience	Impact area	Level					Key impacts
				0	1	2	3	4	
119	University of Colorado Improving researchers self-efficacy related to the public sharing of their knowledge and expertise	PGR	R	✓	✓	✓	✓	✓	The study demonstrated that the experience led to success in producing scholarly work to share with the community, improved researcher confidence to engage in academic activity, and ultimately an edition of an online journal was produced.
120	Victoria University (NZ) Grant funding initiative	RS	R	✓	✓	✓	✓	✓	Grant writing programme coupled with internal funding scheme, led to external success in obtaining funding and publication.

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Vitae

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Vitae works with UK higher education institutions (HEIs) to embed professional and career development in the research environment. Vitae plays a major role in innovating, sharing practice and enhancing the capability of the higher education sector to provide professional development and training for researchers.

Our vision is for the UK to be world-class in supporting the personal, professional and career development of researchers.

Our aims:

- building human capital by influencing the development and implementation of effective policy relating to researcher development
- enhancing higher education provision to train and develop researchers
- empowering researchers to make an impact in their careers
- evidencing the impact of professional and career development support for researchers.

For further information about the range of Vitae activities go to www.vitae.ac.uk or contact website@vitae.ac.uk

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