

Employers' views of researchers' skills

A comprehensive review of the existing literature into employers' views of the skills of early career researchers

September 2007

Employers' views of researchers' skills

Employers' views of researchers' skills published by the UK GRAD programme

Employers' views of researchers' skills has been written on behalf of the Rugby Team by:
Dr Anna Claudia Morgavi, Project Researcher, University of Sheffield
Mary McCarthy, Careers Advisor, The Careers and Employment Service, University of Exeter, AGCAS and Rugby Team member
Dr Janet Metcalfe, Director, UK GRAD Programme and Rugby Team member.

The authors would like to thank:

- Julie Blant, Deputy Director, Postgraduate Careers Service, Nottingham University Business School; Chair of AGCAS Postgraduate Task Group and Rugby Team member for her experience and results of her survey of AGCAS members
- members of the Rugby Team for their ideas, input and comments on the development of the project and subsequent publication
- participants at the *Gathering employers' and employees' views* workshop, UK GRAD Policy Forum, 2007.

Produced as part of a series of activities and publications by the Rugby Team
www.grad.ac.uk/rugbyteam

The Rugby Team is a sector-led working group, drawn from a cross-section of HEIs and other relevant stakeholders, with a mission to '*propose meaningful and workable ways of evaluating the effectiveness of skills development in early career researchers*'.

The UK GRAD Programme provides management support and resources to the Rugby Team. The UK GRAD Programme is funded by the UK Research Councils and managed by CRAC: The Career Development Organisation dedicated to lifelong career development and active career-related learning.

To order a copy please contact the UK GRAD Programme
Telephone 01223 448510 or email_orders@grad.ac.uk

ISBN-10: 0-9547565-7-6
ISBN-13: 978-9-9547565-7-4

© 2007 Rugby Team, a sector-led working group proposing ways to evaluate the effectiveness of researchers' skills development.

Material from this document may be reproduced for non-commercial purposes providing *Employers' views of researchers' skills*, Rugby Team, 2007 is acknowledged. If material is required for commercial use, please contact the UK GRAD Programme in the first instance.



Contents

Introduction	2
The studies	2
Overview of studies	3
Summary of findings	4
Types of companies who recruit postgraduate researchers	4
Recruitment processes	5
Added value of PhD graduates and research staff	6
Recruitment trends for postgraduate researchers and research staff	6
The communication gap	6
Diverse organisational cultures and expectations	7
Employers' views on skills needed	7
Conclusions	8
Summary and recommendations	10
APPENDIX 1: Selected studies	12
APPENDIX 2: General overview of studies relating to the relationship between universities, early career researchers and employers	17

Introduction

In the recommendations arising from the 2002 Roberts Review 'SET for Success'¹, the 2004 revision of Section 1 of the QAA Code of Practice² and the Research Councils Joint Skills Statement³, we have seen a growing emphasis on skills development and training, the importance of improving submission and qualification rates, the quality of supervision and the quality assurance of research degree programmes⁴.

The Rugby Team, a sector-led working group formed following the January 2005 UK GRAD Roberts Policy Forum, aims as part of its remit to contribute to a strategic debate with national stakeholders on how to evaluate the effectiveness of skills development amongst early career researchers. In the Rugby Team Strategy Report, presented at the Roberts Policy Forum in January 2006, a number of recommendations were put forward for various stakeholders. In relation to this report, recommendation 3b was particularly significant⁵.

Between December 2006 and January 2007 over fifty studies were explored. Of these, over forty studies were examined which related in some way to recommendation 3b⁶. These were sourced from the reports and web links referenced in "What Do PhDs Do?"⁷ and a survey of members of the Association of Graduate Careers Advisory Services (AGCAS)⁸. The scope of this report was to summarise information and conclusions from these studies and to highlight recurring themes across the breadth of the research presented.

This report represents a collection of citations and findings from the list of studies mentioned above. From the various thematic areas within the studies recurring themes were highlighted. Given the remit of the above recommendation, the report focuses upon the findings around the thematic area concerned with interrelationships between universities, early career researchers and employers.

An interim report was presented to participants at the Roberts Policy Forum in January 2007 and recommendations made by that group are presented in the summary and conclusions.

The studies

The studies reviewed, date from 1998 to 2006. Although some of them were published after the publication of the Roberts' Report in 2002, the majority of studies draw on data that cannot take into account the influence of Roberts' funding on practice. Thus these studies generally can be termed "pre-Roberts" studies.

In terms of methodology the range of studies could not be easily compared: they often presented descriptive results, used data from previous studies and were sometimes reports of more general policy. Nevertheless, qualitative information was available and themes emerged; seven major topics with sub themes were identified. These were either the main subject of the studies or were part of the analysis.

¹ www.grad.ac.uk/roberts

² www.grad.ac.uk/qaa

³ www.grad.ac.uk/jss

⁴ For more information on UK initiatives relating to research degree programmes and links to reviews and reports go to www.grad.ac.uk/nationalpolicy

⁵ Recommendation 3b: the Rugby Team recognises the importance of collecting feedback on the research and generic skills agenda from all stakeholders. It is recommended that the UK GRAD Programme should consider the development of a meaningful and viable way of collecting feedback particularly from academic and non academic employers, employees and researchers as an extension to the publication 'What Do PhDs Do?', UK GRAD Programme Policy Forum 2006 report www.grad.ac.uk/2006policyforum

⁶ The complete bibliography can be found in the Appendix 1.

⁷ www.grad.ac.uk/wdps

⁸ www.agcas.ac.uk

The main themes are:

1. The relationship between universities, early career researchers and employers
2. Postgraduate researchers and research staff issues
3. Career progression categorised by generic studies and discipline specific studies
4. Remuneration and salary
5. Differentiation between the first-degree graduate and the research postgraduate experience
6. International perspectives
7. Skills analysis

Appendix 1 presents the studies by thematic area.

Overview of studies

A first broad categorisation of the selected reports was made according to a set of parameters; building on the information available from each study a short précis was compiled⁹.

Given the remit of recommendation 3b, all of the reports were then audited in relation to extracting employers' views in particular (and any other material in general) which aided the collection of feedback and views of researchers' skills development. Eventually, sixteen studies were selected for in-depth analysis.

Some reports¹⁰ in fact describe the perspectives of postgraduate researchers in relation to skills and experience both at work and study. The postgraduates' perspectives are a valuable insight and should be compared with the employers' views in a later study.

Five studies¹¹ hold some consistency as they follow a similar template in the questions posed for the survey, which is the principal method used. They are usually from Careers Services professionals or members of AGCAS.

The Morris and Cushlow 2000 study¹² is the only study that clearly has a regional focus. This study also describes the views of postgraduate researchers.

Others are discipline-specific¹³ and one of them, although does not explicitly state it, also has a regional focus¹⁴.

Two reports¹⁵ take 'Roberts' funding into account. As a consequence, results from these studies are not easily comparable with the previous ones. However, we are still in the early stages of the evaluation of outcomes of the Roberts' implementations, so they have been included in the selection.

⁹ According to the following elements, when available: title, publication date, author, date of research, funding, focus, scope and objectives, type of research and methods, data on participants, key findings, recommendations, comments.

¹⁰ *Higher degree of freedom: the value of postgraduate studies* (2004), IES Report 410; *North West Employers' Needs and Expectations of Postgraduate Skills* (2000), Morris and Cushlow, MLI; *Recruiting PhDs: What works?* (2006), Jackson, UK GRAD Programme; *EMPRESS: Employers' Perceptions of Recruiting Research Staff and Students* (2005), Souter, Leeds University Careers Centre.

¹¹ *University Researchers: Employers' Attitudes & Recruitment Practices* (1998), AGCAS; *Survey of Employers' Attitudes to Postgraduates and Contract Researchers* (2000), Wright, University of Strathclyde Career Service; *Survey of employers' views on the Employability* (2003), Oxford University Career Service; *Survey of Employer Attitude to Postgraduate Researchers* (2006), McCarthy and Simm, Sheffield University Career Service, *EMPRESS - Employers' Perceptions of Recruiting Research Staff and Students* (2005), Souter, Leeds University Careers Centre.

¹² *North West Employers' Needs and Expectations of Postgraduates* (2000), Morris and Cushlow, MLI.

¹³ *The employment of Social Science PhDs in academic and non-academic jobs: research skills and postgraduate training* (2006), Purcell and Elias, ESRC; *'Employers' view of postgraduate physicists'* (2001), Jagger, Davis, Lain, Sinclair E, Sinclair T; *Post PhD - What next? A follow up study of PhD postgraduates of the School of Biological Sciences* (2000), MacDonald and Barker, University of Manchester.

¹⁴ *Post PhD - What next? A follow up study of PhD postgraduates of the School of Biological Sciences* (2000), MacDonald and Barker, University of Manchester.

¹⁵ *The employment of Social Science PhDs in academic and non-academic jobs: research skills and postgraduate training* (2006), Purcell and Elias, ESRC; *Recruiting PhDs: What works?* (2006), Jackson, UK GRAD Programme.

¹⁶ *EMPRESS - Employers' perceptions of recruiting research staff and students* (2005), Souter, Leeds University Careers Centre, (employer case studies).

Appendix 2 presents the précis of the sixteen reports relating to Theme 1, the relationship between universities, early career researchers and employers.

Summary of findings

Types of companies who recruit postgraduate researchers

There is a key distinction to be made between companies who *have* postgraduate researchers as members of staff and companies who *recruit* postgraduate researchers as members of staff. Not all companies who have members of staff who possess postgraduate qualifications actively sought (or seek) postgraduates. According to the studies, types of employees could be broken down into several categories; size of the company, discipline specificity, and intention:

- employers who have not considered targeting PhD graduates as a cohort. (Jackson 2006). 'The majority of those employers who do not recruit postgraduate or postdoctoral researchers are unable to list their skills. *Even those who did try to list the skills a PhD researcher might develop were unable to do this comprehensively*'¹⁶
- employers who have recently started to employ or are thinking about employing newly qualified PhD graduates (Jackson 2006)
- 'chance' employers: companies who do have at least one postgraduate member of staff but did not intentionally seek a postgraduate researcher. They were often unwilling or unable to recognise the additional skills gained from a postgraduate qualification. (Morris and Cushlow, 2000)
- 'large' graduate employers: for Morris and Cushlow these are large companies who recruit a large number of graduates and postgraduates each year, typically onto a Graduate Development Scheme. Postgraduates are nearly always given the same roles as graduates. For the Purcell and Elias study (2006) these recruiters might not necessarily be large but are certainly in the majority
- 'Intentional' employers are those who intentionally¹⁷ or regularly¹⁸ employ postgraduate staff. In the Morris and Cushlow study these tended to be small, technical SMEs who recruited postgraduate researchers for their specialist skills and knowledge
- the study on the employment of social science PhD graduates¹⁹ highlighted how recruiters might not be aware of the presence of employees holding a PhD qualification.

In the Social Sciences²⁰, employers actively seeking PhD graduates could be divided into three categories:

- small specialist research agencies and consultancies where the employer sought 'all round' research skills, project management skills and excellent interactive skills
- employers who sought particular technical and specialist analytical skills and knowledge, primarily to fill vocational roles such as clinical psychologist or a psychometrics expert in the human resource management department
- large organisations, generally global or with a global remit, who required highly-specialist expertise in economics or development.

¹⁷ Morris and Cushlow, 2000

¹⁸ Jackson, 2006

¹⁹ Purcell and Elias, *op.cit.*

²⁰ Purcell and Elias, 2006

²¹ Souter, *op.cit.*

In one particular sample studied, engineering appeared to be the sector most likely to directly target researchers as potential employees. They were also most likely to differentiate in terms of career path and remuneration. The legal sector explicitly seems to target few, if any, postgraduate researchers – although, arguably, this type of work should particularly lend itself to skills researchers have to offer. However, this sector was the least likely to differentiate as they offered mainly training contracts, which can be undertaken from first-degree level. In areas such as Investment Banking and Management Consultancy, a few employers have been recruiting newly qualified PhD graduates for some time, while others have only recently started to recruit people with PhDs in any significant numbers²¹.

Some employers stated preference for competence rather than title thus adjusting their recruitment practices accordingly: the use of competency-based interviews resulted in the employment of people from a wide range of backgrounds and employers relied on these processes to recruit the right person for the job - whatever their background²².

Recruitment processes

Selection processes vary considerably between organisations and differences are due to several factors:

- the quality and characteristics of the selection process itself, involving specialised assessment centres, ‘googling through the Internet’, through previous knowledge of the candidates and/or department, or by the use of informal methods²³. In one of the older studies²⁴ it was stated that organisations seem to have a very individual approach to recruitment that makes it more difficult to draft generalist promotional material to encourage more employers to consider recruiting researchers. Furthermore the lack of accurate recruitment statistics makes it difficult to determine which organisations research staff should target
- the size of the company:²⁵ the smaller organisations tend to use relatively cursory selection processes whereas the larger organisations tend to use more detailed competency-based assessment centres, covering aspects of personality, technical competence and transferable skills
- differences also exist in terms of the focus of the company and discipline specificity, although further research needs to be done here²⁶. There was some evidence that for the ‘specialist’ nature of the kinds of posts that researchers may fill, people have a desire to talk ‘technical to technical’²⁷
- the Oxford study²⁸ affirmed that although there was no differentiation between the recruitment of graduates and postgraduates, the majority of people interviewed would welcome applications from postgraduate researchers and research staff. However, the Souter²⁹ study observed that people were often reluctant to reflect on the anomaly that they are open to employing people with a range of educational backgrounds but in the main, clearly do not – perhaps resulting in some answers that erred on the side of political correctness
- employers and specialised recruitment personnel seem unprepared under many fronts³⁰: lack of knowledge of the history of postgraduate recruitment within the firm; unawareness of whether postgraduate researchers are employed at all and whether those employed brought any benefit. Anecdotal evidence suggests that these benefits however only become clear at practice stage

²² *ibid.*, (employer case studies)

²³ *ibid.*

²⁴ *University Researchers: Employers' Attitudes & Recruitment Practices* (1998), AGCAS.

²⁵ *Post PhD – What Next?* (2000), MacDonald and Barker.

²⁶ See: *The employment of Social Science PhDs in academic and non-academic jobs* (2006), Purcell and Elias.

²⁷ Souter, *op.cit.*

²⁸ *Survey of Employers views on the Employability of Oxford Postgraduate Students and Recruitment Practices* (2003), Oxford.

²⁹ Souter, *op.cit.*

³⁰ Souter, *op.cit.*

Employers' views of researchers' skills

- the annual recruitment cycle is in no way tailored to recognise the added benefit that these people may bring. However, the majority of employers did not support the concept of a recruitment fair specifically for academic researchers³¹.

Added value of PhD graduates and research staff

In line with the non-standardised recruitment practices outlined above for research staff and PhD graduates, the Empress study³² affirmed that the employers interviewed welcomed postgraduate applications but this level of qualification was not necessarily a central requirement. However, recruitment practices for graduates are more standardised; there tend to be set timescales, schemes or patterns, which may mitigate against the recruitment of postgraduate researchers.

In the Oxford study³³, 89% of interviewees said that there was no difference between the recruitment processes for postgraduates and first-degree graduates. However, starting salaries for postgraduate researchers varied according to level of qualification in 35.8% of organisations questioned.

In terms of entry points, starting salaries and training, early research showed a lack of distinction between researchers and first-degree entrants. Later studies quoted a number of recruiters expressing the finding that researchers tended to learn quickly and, as a consequence, their progression was speedier³⁴.

More recent studies also highlight faster career progression and higher salaries of research staff and PhD graduates, and report on the benefits of hiring postgraduate researchers and research staff³⁵.

Recruitment trends for postgraduate researchers and research staff

The Sheffield study³⁶ highlighted that, in relation to the skills employers recruit PhD graduates for, this picture has not changed significantly in the last five years. However, the study did show that more recruits are hired by small and medium-sized enterprises now than was revealed in previous studies.

If we look at the functions for which postgraduate researchers and research staff are recruited, the Oxford study³⁷ showed a significant number entering some form of consultancy, scientific research and development, or other forms of research. For the Sheffield survey, research and specialised consultancy are still the main functions although a number of recruiters also emphasised the need for related experience³⁸.

The communication gap

According to the Empress study³⁹, researchers do not appear to articulate their personal skills well and seem to be unable to talk to employers in 'their' language.

The study addresses the difficulty in effective communication among all the parties involved. For the authors a 'communication triangle' approach, supported by other university-based 'enablers', could be important in order to move forward positively.

³¹ AGCAS, *op.cit.*

³² Souter, *op.cit.*

³³ Oxford, *op.cit.*

³⁴ Contrast the Oxford study (2003) with Souter (2005) and McCarthy and Simm (2006).

³⁵ Jackson, *op.cit.*

³⁶ McCarthy and Simm, *op.cit.*

³⁷ Oxford, *op.cit.*

³⁸ McCarthy and Simm, *op.cit.*

³⁹ Souter, *op.cit.*

The Lambert Review⁴⁰ too expressed a concern over the level of research and training collaboration between universities and businesses.

Jackson lamented that, “*while there is the commitment from employers to recruit PhD graduates and interest from researchers in non-academic careers, there is a communication gap between the two groups*”⁴¹.

The Roberts' Review recommended an active engagement of businesses in the formation of, and influence on, university courses in order to make their needs and skills requirements known to students and higher education institutions.

Diverse organisational cultures and expectations

A matter of concern drawn from the studies was the difference in beliefs and expectations of the stakeholders involved:

- according to the Sheffield study⁴² the negative comments of employers were generated by a set of perceptions of what PhD researchers and postdoctoral staff can or cannot do, not necessarily based on reality
- according to the Lambert Review, “businesses and universities do not make easy bedfellows”. To build a culture allowing the two systems, which are working on different time-scales and towards different objectives, to interrelate requires “*a considerable commitment from both sides, and an infrastructure that can sustain the relationship*”.

Notwithstanding these difficulties the Higher Education Business Interaction Survey 2001-2002⁴³ explored the relationship between universities and business and showed a steady improvement in business-university relations under many fronts, with increases in:

- planning for business support provision
- partnerships with small and medium sized enterprises (SMEs)
- CASE studentships, Knowledge Transfer Partnerships (formerly the Teaching Company Scheme) and the financial value of collaborative research
- provision of courses for business and related involvement of employers
- deployment of regeneration funds overall, particularly for institutions with a higher research profile
- commercialisation and related activities, many supported through third stream (business and community) funding
- consultancy activity, in-house licensing activity and total intellectual property revenues in HEIs

Employers' views on skills needed

The following are the list of skills which employers believe PhD graduates and research staff have and do not have. It is impossible to compare study with study and these are only qualitative descriptions with no statistical validity. Nevertheless the list gives us an indicator of recurrent themes:

⁴⁰ Lambert Review of Business-University Collaboration (2003), Sir Richard Lambert, HM Treasury

⁴¹ Jackson, *op.cit.*

⁴² McCarthy and Simm, *op.cit.*

⁴³ Higher Education Business Interaction Survey (2004), HEFCE.

Employers' views of researchers' skills

- the first and most commonly cited gap is related to the difficulty in gaining commercial awareness and in making the transition from one working culture to another
- lack of flexibility and adaptability was also mentioned often, with perceived problems of integration
- lack of interpersonal skills, team-working skills and customer orientation was also cited
- some employers also saw PhD graduates and research staff as overqualified and over specialised, with a narrowness of interest and lack of self management
- in one study it was recognised that PhD graduates and Research staff have specific aptitudes, but this is not enough in itself to make them attractive to industry
- high expectations in terms of salary and career progression that was disproportionate to their experience was mentioned in more than one study.

On the positive side...

- there was a general assumption that completion of a PhD indicated possession of initiative, intellectual ability and the capacity to work autonomously
- when PhD candidates held industrial experience, they were considered to be highly commercially aware and showed great capacity to learn
- employers who listed skills possessed by PhD candidates were positive and talked about high calibre employees. Maturity and enthusiasm were mentioned frequently, as was technical proficiency, specialist knowledge and problem solving skills.

Conclusions

From the review of the studies across the spectrum of employers there were diverse informed and uninformed views of the skills of postgraduate researchers and research staff. As a generality, employers who have experience of recruiting and employing early career researchers were more likely to be informed of and appreciate their skills, particularly their intellectual ability, initiative and problem solving skills.

Employers who do not recruit PhD graduates or research staff were more likely to have stereotypical views of a lack of interpersonal skills, being overqualified and having narrow interests.

However, there were also consistent messages from across the employer spectrum of a general lack of commercial awareness and the importance of being able to make swift transitions between working cultures. The focus of recommendations from many of the studies was to work with researchers to improve their employability.

There was clear evidence that all stakeholders were interested in personal development and additional marketable skills of researchers. Yet the question about where the responsibility for skills development lies, and how far this should extend, remains critical⁴⁴.

⁴⁴ Souter, *op.cit.*

A number of the studies describe how collaborative training and offering work experience to postgraduate researchers has brought benefits to higher education institutions, to postgraduate researchers and to employers and how dialogue and collaboration should be a priority for all those involved⁴⁵.

The Lambert Review encouraged universities to increase its provision of continuing professional development (CPD), which at the time of the review the HE sector accounted for only around £250m out of a £23bn market⁴⁶. Regional Development Agencies could have a greater role in facilitating Knowledge Transfer Partnerships in their regions⁴⁷.

More could be done to bridge the communication gap between researchers and employers. Raising the profile of non-academic career options, through exposure to commercial and industrial employers and the enhancement of a more outward-looking and entrepreneurial culture within HEIs, would aid employability amongst early career researchers. Conversely, raising the profile of PhD graduates amongst employers outside of academia was also seen as a necessity⁴⁸.

In terms of recruiting processes, PhD researchers and research staff are niche cohorts and need to be targeted differently. Also, they want to be treated differently and to have their skills and experiences recognised, not only by employers but also by University Careers Services⁴⁹. This deferential treatment should extend to vacancy information and recruitment practices. Appropriate labour market information could inform current researchers and job search tools for PhD graduates would make the job seeking process less time-consuming⁵⁰.

The development of career management skills also is seen as extremely valuable⁵¹. Institutional activities and national initiatives, such as the UK GRAD Programme, GRADschools and 'Careers in Focus' events, are seen as helpful, especially events involving alumni who can offer mentoring and other forms of support.

Jackson's report⁵² also contains useful examples of existing practice by universities and employers in bridging the communication gap. It also highlights other ways to make a difference, such as:

- having a designated contact in Careers Services for employers looking to recruit PhD graduates
- providing mechanisms for employers to publicise PhD graduate job opportunities
- providing labour market information and job search skills for PhD graduates.

⁴⁵ Souter, *op.cit.*; *Survey of employer attitudes to postgraduate researchers*, The Lambert Review (2003).

⁴⁶ This is seen by Lambert as an important form of knowledge transfer. Businesses can raise the skill levels of their workforce and learn about the latest academic ideas, while universities gain access to the latest developments in professional practice. Such courses can also generate a valuable source of income for universities. *Lambert Review of Business-University Collaboration - Final Report* (2003)

⁴⁷ Lambert, *op.cit.*

⁴⁸ *'Employment of Social Science PhDs'* (2006), Purcell and Elias, McCarthy and Simm (2006); Morris and Cushlow (2000).

⁴⁹ Jackson (2006).

⁵⁰ Jackson (2006), job search tools; Morris and Cushlow (2000); Lambert (2003).

⁵¹ McCarthy and Simm (2006); Morris and Cushlow (2000); AGCAS (1998).

⁵² Jackson, *op.cit.*

Summary and recommendations

Several underlying themes have emerged from this review of sixteen reports relating to the relationship between universities, early career researchers and employers:

- early career researchers have a valuable set of skills that are rarely appreciated by uninformed employers
- the importance of improving the employability of researchers, particularly their commercial awareness and transition to employment
- the value of exposing researchers to other working environments
- the need to bridge the communication gap between employers and researchers
- the value of developing appropriate recruiting processes
- the importance of developing the career management skills of researchers.

All of the above themes resonate with the intent behind the recommendations of the Roberts Review, SET for Success. They reinforce the importance of maintaining progress in embedding personal, professional and career skills development within research degree programmes and for research staff.

Many institutions are attempting to find ways to tackle these issues as highlighted in the latest report on the recruitment of PhD graduates into the non-academic employment market, *Recruiting PhDs: What works?*⁵³. This report takes a 360 degree view of the PhD graduate recruitment market and gives examples of existing practice of what works for:

- final year PhD researchers
- universities and their careers services
- employers
- recent recruits.

This report also contains useful examples of existing practice by universities and employers in bridging the communication gap by:

- demonstrating an understanding of the unique value of PhD graduates
- the need for further engagement and dialogue between researcher, employers and universities
- the importance of communication mechanisms.

Many of these recommendations equally apply to supporting the career development of research staff. We recommend this report to others.

⁵³ www.grad.ac.uk/publications

Participants at the Roberts Policy Forum in January 2007 developed several recommendations that also address some of these issues. The Rugby Team supports these recommendations.

1. Institutions could utilise alumni databases to gather information regarding researchers in a variety of employment environments. These researchers could be asked provide case studies to illustrate the range of employment available to researchers and to contact their line managers to explore issues of skills needed in the workplace and the skills researchers were perceived to bring with them from their period of research.
2. To work more closely with employer organisations, such as the CBI and AGR, and professional bodies at national level, in order to help communicate the value of employing skilled researchers to more employers in relevant sectors.
3. The Research Career Mapping Tool⁵⁴ being developed by RCUK should be extended to cover the range of career opportunities available for researchers. This also will be an appropriate vehicle to link to relevant labour market information and provide job search tools.
4. Universities and their careers services should give better support to employers who would like to employ early career researchers, especially small and medium sized employers for whom the traditional recruitment methods might not be appropriate.
5. This review should be extended to include international studies on the impact of researchers and their employability with the aim of identifying transferable practice.
6. Institutions should explore the potential for developing researcher-led initiatives and opportunities for experiential learning through 'real' activities including enterprise learning and involvement in academic activities to improve commercial awareness.
7. Where effective skills analysis exists within universities, these could be used to demonstrate one aspect of the richness of the PhD researcher and research staff experience in the 'post Roberts' era.

⁵⁴ www.grad.ac.uk/rci

APPENDIX 1: Selected studies

1. The relationship between universities, early career researchers and employers. (in descending order of year of publication)

Recruiting PhDs: What works? (2007), Jackson, UK GRAD Programme, www.grad.ac.uk/publications

Survey of employer attitudes to postgraduate researchers (2006), McCarthy and Simm, University of Sheffield. www.careers.dept.shef.ac.uk/pdf/employersurvey.pdf

EMPRESS: Employers' Perceptions of Recruiting Research Staff and Students (2005), Souter, University of Leeds Careers Centre http://careerweb.leeds.ac.uk/downloads/Empress_LR.pdf

What Do PhDs Do? (What do PhDs offer the employment market) (2004), Shinton, UK GRAD Programme www.grad.ac.uk/wdpd

Higher Degrees of Freedom: The Value of Postgraduate Study (2004) Institute for Employment Studies Report 410 www.employment-studies.co.uk/pubs/report.php?id=410

The Higher Education-Business Interaction Report (January 2004), Higher Education Funding Council for England www.hefce.ac.uk/pubs/hefce/2004/04%5F07/04%5F07.pdf

Lambert Review of Business-University Collaboration (2003), Sir Richard Lambert, HM Treasury www.hm-treasury.gov.uk/consultations_and_legislation/lambert/consult_lambert_index.cfm

Survey of Employers views on the Employability of Oxford Postgraduate Students & Recruitment Practices (2003) Oxford University [Internal circulation only]. Findings reproduced by kind permission of John Kirwan, Deputy Director, University of Oxford Careers and Appointments Service

SET for Success: the supply of people with science, technology, engineering and mathematics skills (2002), Sir Gareth Roberts' Review, HM Treasury www.hm-treasury.gov.uk/documents/enterprise_and_productivity/research_and_enterprise/ent_res_roberts.cfm

Graduates in the Eyes of Employers (2002), Park, Guardian and AGR <http://adinfo-guardian.co.uk/recruitment/pdf/research-pdfs/giee-brochure-2002.pdf>

NW Employers' Needs and Expectations of Postgraduates: Dissemination Report (March 2000), Morris, Labour Market Intelligence www.lmi4he.ac.uk/publications.php

Survey of Employer Attitudes to Postgraduates and Contract Researchers (2000) Wright, University of Strathclyde www.heacademy.ac.uk/employability.asp?process=full_record§ion=generic&id=134&project_area=pa5

University Researchers: Employers' Attitudes and Recruitment Practices, AGCAS (1998) on behalf of the Higher Education Staff Development Agency www.heacademy.ac.uk/employability.asp?process=full_record§ion=generic&id=135&project_area=pa5

Discipline specific documents including employers' views

'The employment of Social Science PhDs in academic and non-academic jobs: research skills and postgraduate training' (2006), Purcell and Elias, ESRC
www.esrcsocietytoday.ac.uk/ESRCInfoCentre/Images/employment_of_soc_sci_phds_tcm6-15385.pdf

Employers' Views of Postgraduate Physicists (2001), Jagger, Davis, Lain, Sinclair E and Sinclair T, IES/EPSRC
www.employment-studies.co.uk/summary/summary.php?id=1417phys or download the report
www.employment-studies.co.uk/pdflibrary/1417phys.pdf

Post PhD - What Next? (May 2000), MacDonald and Barker, University of Manchester
www.lmi4he.ac.uk/Documents/Post%20PhD.doc

Survey of Postgraduates Funded by the Research Councils (April 1998), Office of Science and Technology (OST), now the Office of Science and Technology (OSI), not available on-line

2. Postgraduate researchers' and research staff' issues

EMPRESS: Employers' Perceptions of Recruiting Research Staff and Students (2005), Souter, University of Leeds Careers Centre http://careerweb.leeds.ac.uk/downloads/Empress_LR.pdf

A national review of emerging practice on the use of Personal Development Planning for postgraduate researchers (2004), UK GRAD Programme, National Postgraduate Committee and Centre for Recording Achievement www.grad.ac.uk/downloads/pdp_review.pdf

SET for Success: the supply of people with science, technology, engineering and mathematics skills (2002), Sir Gareth Roberts' Review, HM Treasury www.hm-treasury.gov.uk/documents/enterprise_and_productivity/research_and_enterprise/ent_res_roberts.cfm

National Survey of Postgraduate Funding and Priorities (2002), National Postgraduate Committee
www.npc.org.uk/postgraduatefactsandissues/postgraduatepublications/nationalsurveyofpostgraduatefundingandpriorities2002.pdf

Radical Thinking. Creative Solutions (2001) (conference proceedings), The Wellcome Trust
www.wellcome.ac.uk/assets/wtd003196.pdf

The Student Perspective (2000), The Wellcome Trust www.wellcome.ac.uk/assets/wtd003204.pdf

The Supervisor Perspective (2000), The Wellcome Trust www.wellcome.ac.uk/assets/wtd003206.pdf

Preparing Postgraduates To Teach In Higher Education (1999), UK Council for Graduate Education
www.ukcge.ac.uk/filesup/GTA.pdf

3. Career Progression

Generic Studies

What Do PhDs Do? (What do PhDs offer the employment market) (2004), Shinton, UK GRAD Programme
www.grad.ac.uk/wdpc

Career Paths of Physics Post Doctoral Research Staff (July 1999) DTZ Piedad Consulting and Institute of Physics. Hard copies are available from the IoP

Disciplines specific studies

Arts & humanities

Career Path Study of PhD students (December 2006), DTZ Consulting, Arts and Humanities Research Council www.ahrc.ac.uk/images/PhD_Report.pdf

PhDs in Art History: Over a Decade Later (March 2003), Sadrozinski, Nerad and Cerny, University of Washington, <http://depts.washington.edu/coe/cirge/html/arthistory.html>

Doctoral Futures: Career Destinations of Arts and Humanities Research Students (December 2002) A copy can be obtained from cihe@btinternet.com

From Rumors to Facts: Career Outcomes of English PhDs (1999), Nerad and Cerny, Council of Graduate Schools Communicator http://depts.washington.edu/coe/cirge/pdfs%20for%20web/rumors_to_facts.pdf

The Center for Innovation and Research in Graduate Education at the University of Washington
<http://depts.washington.edu/coe/cirge/index.html>

Beyond Academe website for history PhD graduates about careers outside academia
www.beyondacademe.com/

Biomedical and biological sciences

Annual survey of UK biochemistry graduate employment (2003), Biochemical Society
www.biochemsoc.org.uk/education/survey/default.htm

Career paths of a 1988-1990 Prize Student Cohort (2000), The Wellcome Trust
www.wellcome.ac.uk/assets/wtd003201.pdf

Post PhD - What Next? (May 2000), MacDonald and Barker, University of Manchester
www.lmi4he.ac.uk/Documents/Post%20PhD.doc

Survey of Postgraduates Funded by the Research Councils (April 1998), Office of Science and Technology (OST), now the Office of Science and Technology (OSI), not available on-line

Social sciences

Employment of social science PhDs in academic and non-academic jobs: research skills and postgraduate training (May 2006), Purcell and Elias, ESRC
www.esrcsocietytoday.ac.uk/ESRCInfoCentre/Images/employment_of_soc_sci_phds_tcm6-15385.pdf

Career Paths and Training Needs of Social Anthropology Research Students (2005), Spencer, Mills and Jepson, University of Edinburgh www.san.ed.ac.uk/documents/sa_careerpathsreport.pdf

The Social Science PhDs - Five Years Out Survey (October 2004), Nerad, CIRGE
<http://depts.washington.edu/coe/cirge/html/ford.html>

Career Outcomes of Political Science PhD Recipients (February 2003), Nerad, CIRGE, University of Washington <http://depts.washington.edu/coe/cirge/pdfs%20for%20web/Poli%20Sci%20Report6.pdf>
First Destination Survey, ESRC Studentship Handbook (2002), ESRC. Not available on-line.

Survey of Postgraduates Funded by the Research Councils (April 1998), Office of Science and Technology (OST), now the Office of Science and Technology (OSI), not available on-line

Various publications related to career paths, Center for Innovation and Research in Graduate Education, University of Washington http://depts.washington.edu/coe/cirge/html/career_path.html

Physical sciences and engineering

A Fifteen Year Longitudinal Career Path Study of PPARC PhD Students (2003) and *A Study of the Career Paths of PPARC PhD Students* (2003), DTZ Piedad Consulting / PPARC (now Science and Technology Facilities Council) www.so.stfc.ac.uk/publications/publorderform.aspx#PG

SET for Success: the supply of people with science, technology, engineering and mathematics skills (2002), Sir Gareth Roberts' Review, HM Treasury www.hm-treasury.gov.uk/documents/enterprise_and_productivity/research_and_enterprise/ent_res_roberts.cfm

'NW Employers' Needs and Expectations of Postgraduates': Dissemination Report (March 2000), Morris, Labour Market Intelligence www.lmi4he.ac.uk/publications.php

Postgraduate Career Progression a survey of former SERC funded postgraduates (2000), Whitfield, National Centre for Social Research / ESRC. It can be purchased at Natcen www.natcen.ac.uk/natcen/pages/op_educationandskills.htm

Career Paths of Physics Post Doctoral Research Staff (July 1999) DTZ Piedad Consulting and Institute of Physics. Hard copies are available from the IoP

Survey of Postgraduates Funded by the Research Councils (April 1998), Office of Science and Technology (OST), now the Office of Science and Technology (OSI), not available on-line

SET Statistics Office for National Statistics, SET statistics: science, engineering and technology indicators, Chapter 5 www.dti.gov.uk/science/science-funding/set-stats/index.html

4. Remuneration and salary

RSC Trends in Remuneration Survey Report (2004), Royal Society of Chemistry (extracts) <http://image.guardian.co.uk/sys-files/Education/documents/2004/07/05/SBS0407.pdf>

IOP Salary Survey (2001), Institute of Physics <http://physicsweb.org/article/world/14/10/9>

IEE Salary Surveys (2000) (2002), Institute of Electrical Engineers www.iee.org/Membership/services/salaries.cfm (IEE members only)

5. Differentiation between the first-degree graduate and the research postgraduate experience

What Do PhDs Do? (What do PhDs offer the employment market) (2004), Shinton, UK GRAD Programme www.grad.ac.uk/wdpc

Seven Years On: Graduate Careers in a Changing Labour Market (2004), HECSU / ESRC www.prospects.ac.uk/downloads/csdesk/members/reports/seven_years_on.pdf

'The Higher Education-Business Interaction Report' (January 2004), Higher Education Funding Council for England www.hefce.ac.uk/pubs/hefce/2004/04%5F07/04%5F07.pdf

Employers' views of researchers' skills

Lambert Review of Business-University Collaboration (2003), Sir Richard Lambert, HM Treasury www.hm-treasury.gov.uk/consultations_and_legislation/lambert/consult_lambert_index.cfm

Annual survey of UK biochemistry graduate employment (2003), Withnall, Biochemical Society. The 2003 survey was based on data provided by 31 pre-1992 and 6 post-1992 institutions www.biochemsoc.org.uk/education/survey/default.htm

SET for Success: the supply of people with science, technology, engineering and mathematics skills (2002), Sir Gareth Roberts' Review, HM Treasury www.hm-treasury.gov.uk/documents/enterprise_and_productivity/research_and_enterprise/ent_res_roberts.cfm

Patterns of higher education institutions in the UK (2002), Universities UK <http://bookshop.universitiesuk.ac.uk/downloads/patterns2.pdf>

Enhancing employability, recognising diversity (2002), Universities UK www.universitiesuk.ac.uk/employability/

Graduates in the Eyes of Employers (2002), Park, Guardian and AGR <http://adinfo-guardian.co.uk/recruitment/pdf/research-pdfs/giee-brochure-2002.pdf>

6. International perspectives

The Social Science PhDs - Five Years Out Survey (October 2004), Nerad, CIRGE <http://depts.washington.edu/coe/cirge/html/ford.html>

PhDs in Art History: Over a Decade Later (March 2003), Sadrozinski, Nerad and Cerny, University of Washington, <http://depts.washington.edu/coe/cirge/html/arhistory.html>

Career Outcomes of Political Science PhD Recipients (February 2003), Nerad, CIRGE, University of Washington <http://depts.washington.edu/coe/cirge/pdfs%20for%20web/Poli%20Sci%20Report6.pdf>

From Rumors to Facts: Career Outcomes of English PhDs (1999), Nerad and Cerny, Council of Graduate Schools Communicator http://depts.washington.edu/coe/cirge/pdfs%20for%20web/rumors_to_facts.pdf

Center for Innovation and Research in Graduate Education, University of Washington <http://depts.washington.edu/coe/cirge/index.html>

Beyond Academe website for history PhD graduates about careers outside academia www.beyondacademe.com/

7. Skills' Analysis

Prosperity for all in the global economy- world class skills (December 2006), Leitch Review of Skills, HM Treasury, www.hm-treasury.gov.uk/media/523/43/leitch_finalreport051206.pdf#page=152

Skills In England (2003), Hogarth and Wilson, Learning and Skills Council <http://readingroom.lsc.gov.uk/pre2005/research/commissioned/skills-in-england-2003-vol2.pdf>

Work Permits UK (information) www.workingintheuk.gov.uk/working_in_the_uk/en/homepage/work_permits0.html

APPENDIX 2: General overview of studies relating to the relationship between universities, early career researchers and employers

1. University Researchers: Employers' Attitudes & Recruitment Practices (AGCAS, 1998)

The document is an investigation of employers' attitudes to and current practice in recruiting research staff. It aimed to investigate the alternative career prospects for Contract Research Staff and to help improve the flow of the university researcher into other sectors of the economy.

Of thirty-four employers contacted for telephone interviews, thirteen agreed to be interviewed. All interviewees were involved in recruitment to a greater or lesser extent: ten interviewees were recruitment or HRM specialists; one was a Training and Development Manager; one was a Chief Research Officer; one was a Line Manager.

This study focuses on employment issues of a hypothetical candidate with a higher degree and up to three years experience in academic research. The telephone interviews regarded recruitment methods, attitudes, future recruitment plans, vacancies methods and suggestions for other employers. The very low response rate suggested apathy towards the employment of university researchers on behalf of a lot of organisations.

2. North West Employers' Needs and Expectations of Postgraduate (Morris and Cushlow, 2000)

The research was one strand of the research project 'An Holistic Approach to the use of Labour Market Intelligence (LMI) in Higher Education Strategic Planning', jointly co-ordinated by the Bolton Institute and the Enterprise Centre at the University of Manchester. The aim of this research was to look at postgraduate skills, from both the employers' perspective and that of the postgraduates themselves. Looking at what expectations employers have of postgraduate skills and what impact postgraduates have on the companies that employ them. In particular it looked at SMEs in the NorthWest area. The authors looked at five components of the employers' needs for postgraduate staff:

- reasons for recruiting postgraduate qualified staff
- type of companies that recruit postgraduate qualified staff
- skills expected of postgraduate qualified staff
- skills lacked by postgraduates
- preparation for work and the role of higher education.

When examining the perceptions of the postgraduates the researchers looked at three areas: current employment status of postgraduates; their perception of the skills they have to offer; their views on how their postgraduate skills benefit the companies for which they work.

The final data for the research was gathered by:

- a postal survey of 71 recent postgraduates from a range of institutions in the Greater Manchester Area
- a telephone survey of 23 employers of postgraduate staff in the Greater Manchester area – including both large and SME employers across a range of sectors
- follow-up in-depth interviews with 6 of these companies
- in-depth interviews with 8 postgraduates employed by these companies.

UMIST Careers Service supplied additional comments and quotes.

3. Survey of Employer Attitudes to Postgraduates and Contract Researchers (Wright, 2000)

The focus was to investigate employers' attitudes to Postgraduates and Contract Researchers. Following the research published in 1998 by the Association of Graduate Careers Advisory Service (AGCAS) the objective was to further verify the findings and clarify trends. A further survey was commissioned and on this occasion postgraduates were also included. A structured questionnaire was included as an insert with the July edition of Janus, the quarterly magazine sent to employers by the Association of Graduate Recruiters.

A total of eighty employers completed and returned the questionnaire.

They were divided by commercial sectors:

- 7% (6) Retail, Distribution and Leisure (RDL)
- 7% (6) Petrochemical and Pharmaceutical (PP)
- 11% (9) IT and Telecommunication (ITT)
- 13% (10) Public Sector (PS)
- 29% (23) Engineering, Manufacturing and Building (EMB)
- 33% (26) Finance, Law and Management Consulting (FLMC).

4. Post PhD- What next? A follow up study of PhD postgraduates of the School of Biological Science (MacDonald and Barker 2000)

This project was supported with funding from the North West Regional Development Agency and overseen by the Enterprise Centre for Learning and Curriculum Innovation at Manchester University.

This report presents the findings of a pilot initiative which draws on the methodology and good practice of previous LMI research to investigate and enhance the customer focus of PhD study within the School of Biological Sciences.

Three complementary strands addressed the research objectives: first, a series of focus group discussions with current postgraduates within the school; second, a questionnaire survey of the School's past PhD students from the intake years of 1991 to 1996; and third, in-depth interviews with regional employers of the School's postgraduate students.

A key objective of the research was to obtain appropriate post-graduation LMI and feedback to support and inform the School's strategic planning processes in order to:

- enhance the delivery, customer focus and relevance of the School's postgraduate education
- manage and achieve a match between the School's postgraduate supply and employer demand
- facilitate the transition of the School's postgraduates from tertiary education to the workplace.

A second key objective was to contribute to the holistic stakeholder approach to the collection and use of LMI and to inform the development of nationally relevant models of good practice.

The methods used were: focus group; questionnaire survey; in-depth interviews. In-depth interviews were conducted with 8 of the region's postgraduate employers. Such employers ranged from the large multinational pharmaceutical companies to some of the relatively small medical writing companies. For some insight into public sector employment of postgraduates, an NHS employer from the Manchester Healthcare Trust was also contacted and interviewed.

For the scope of this investigation, only the section regarding the employers' views has been reported.

5. Employers' view of postgraduate physicists (Jagger, Davis, Lain, Sinclair E, Sinclair T 2001)

The study was intended to examine the views of those who employ postgraduate physicists as to both the quantity and quality of the current provision. In line with previous studies covering postgraduates of other disciplines, special emphasis was put on examining employers' requirements in terms of soft skills.

A total of fifty-eight employers were interviewed face-to-face and by telephone using a semi-structured questionnaire. These interviews were supplemented by a review of the literature and an analysis of the available secondary data. Finally, people who had recently completed a physics postgraduate training completed questionnaires.

6. Set For Success- the supply of people with science, technology, engineering and mathematical skills (Sir Garth Roberts' Review') (2002)

The Roberts' Report is partly the reason of the present study. The report focuses in fact on biological sciences, physical sciences, engineering, mathematics and computer science's graduates and postgraduates. It has been selected but the information it contains is discipline specific.

7. The Lambert Review of Business-University Collaboration - Final Report (Lambert 2003)

Report commissioned by HM Treasury, the Department for Education and Skills and the Department for Trade and Industry in November 2002. The full terms of reference for the Review are to:

- identify the benefits to business of greater interaction with higher education, how this can be promoted and how any barriers holding back business demand for universities' knowledge and skills outputs can be addressed
- examine the national, regional and local economic impacts of business-university interactions, including how Regional Development Agencies and Sector Skills Councils can best support such interactions
- assess the lessons to be learned from business-university interaction across a range of countries and from best practice across the UK
- analyse how business employers can better communicate their skills requirements to a responsive university sector and how they can improve the attractiveness of career paths to graduates and postgraduates, especially in technology
- examine the effectiveness of measures such as the research and development tax credits on business demand for research and skills
- ask business for its views on the present governance, management and leadership arrangements of higher education institutions and their effectiveness in supporting good research and knowledge transfer and providing relevant skills for the economy.

The scope of the Review is to meet three objectives:

- to illustrate the opportunities that are being created by changes both in the way that business is undertaking research and development (R&D), and in the way that universities are opening their doors to new forms of collaboration with business partners
- to celebrate the success of those businesses which are already collaborating successfully with university research departments, to their benefit and to the benefit of the economy more broadly. They are role models for the majority of companies which at present have no links with universities
- to offer a wide range of ideas to stimulate debate and recommendations to help shape policy.

Around 500 organisations and bodies were contacted: Higher Education Institutions; Businesses; Professional Bodies/Research Councils; International Contributors; Development Agencies; Governmental Organisations. Business and intermediary organisations were contacted seeking their views on current best practice in business-university collaboration, barriers to greater collaboration and some specific issues relating to skills and funding. Secondary data and Case Studies were also used. The review does not reflect the views of any particular contributor.

8. Higher Education Business Interaction Survey 2001-2002 (HEFCE, DTI, OST 2004)

The 2003 survey was carried out by HEFCE on behalf of the HE funding bodies for England, Scotland, Wales and Northern Ireland; the Department of Trade and Industry; and the Office of Science and Technology (OST).

This report presents and analyses the results of the 2003 Higher education-business interaction (HE-BI) survey of all UK higher education institutions (HEIs); the whole of the UK higher education sector; 100% of institutions responded to it in 2003. The HE-BI survey is designed to recognise the diversity of the UK higher education sector -including small institutions, often with a specialist focus, and large multidiscipline institutions that may have, among other capabilities, a strong transferable knowledge base.

The survey is based on information for the academic year 2001-02, and builds on previous surveys published as HEFCE 01/68 and 2003/11. The objectives of the survey were:

- to update the previous survey; to begin to identify trends
- to develop the reliability of selected indicators of HEIs' third stream activity (that is, enhancing their contribution to the economy and society) which might be used annually to inform funding decisions
- to develop low burden processes for collecting data.

It incorporates both numerical metrics – some of them financial – and objective qualitative indicators. Together, these cover aspects of policy, activities and outputs. Data are categorised in two main ways: by country and English region (collectively referred to as 'by area' throughout this publication), and by 'research profile' (or RP, described in the 2002 HE-BI survey as research intensity). The term research profile in this context does not carry any implications about the type of research undertaken. Individual HEIs are not named at any point; this anonymity reviewed for the 2004 survey. Overall, the completion rate was better than in the previous survey (although some institutions still found it difficult to provide full data, for example related to contracts with small and medium-size enterprises (SMEs) or spin-off companies that are legally distinct entities). The 2003 survey is both more complete and more reliable than previous HEBI surveys.

The Higher Education Funding Council for England '*The Higher Education-Business Interaction Report*' does not differentiate between the undergraduate and postgraduate involvement in the 'third stream' activities of universities. One could infer that it is likely highly specialised business-university interactions to involve postgraduates' and post-doctoral researchers' brainpower rather than graduates'. When less specialised skills are involved, this assumption cannot be applied.

9. Graduates in the Eyes of Employers (Park, AGR, Guardian, 2002)

The research has been included in this list but its data were not considered for this analysis because it only reports on graduates. The way in which the report is structured suggests that this study might constitute a good framework on which further research on postgraduates and early career researcher could be based.

10. 'Survey of Employers views on the Employability of Oxford Postgraduate Students and Recruitment Practices' (Kirwan, 2003)

The purpose of the study was that of investigating employers' recruitment procedures towards postgraduates; employers' views on recruiting postgraduates. The survey received a total of sixty-seven responses with the prevalence of small size enterprises (10-50 employees: 23.9%; 50-100 employees: 20.9%) and large (>1500 employees: 22.4%). The business/activities of respondent organisations were in the majority in IT, law and finance and charity sector.

11. Higher Degrees of Freedom: the Value of Postgraduate Study (Barber, Pollard, Millmore, and Gerova 2004)

The study reports the postgraduate perspective; and for this reason why it was only included in the wider analysis. Its data were not used for this report. This report looks at what influences an individual's choice of postgraduate study, their study experiences and labour market outcomes, and the value of studying beyond first-degree. With more and more graduates choosing to continue their studies at higher degree level, this report offers a detailed insight into the diversity of postgraduate experiences, both during and after courses, reporting on the destinations and labour market experiences of over two hundred UK domiciled postgraduates graduating in 1999 and 2001. It uses questionnaire data supplemented with interview data to provide a rich picture of study outcomes, labour market expectations, career routes and decisions.

Participants were drawn from the University's alumni database: over two hundred UK domiciled postgraduates graduating in 1999 and 2001. The report also examines experiences of just under one hundred Sussex University postgraduates who came to study from the wider European Union or further overseas.

12. What do PhDs Do? What do PhDs offer the employment market (UKGRAD, 2004)

The study is a collection of Interviews' extracts with the purpose of illustrating '*to both potential employers and postgraduate researchers the wide range of transferable competencies that researchers develop during their PhD studies*'. It is also the first study that lists a series of comments making the comparison between first-degree graduates and postgraduates.

13. EMPRESS: Employers' Perceptions of Recruiting Research Staff and Students (Souter, 2005)

Funded through Roberts' money, the research was carried out in order to explore in more detail the reality of the current employment market for researchers, where they are considering and/or applying for posts outside HE – either by desire or necessity. The purpose and outcomes of the project were originally set out as follows:

Purpose: To develop a bank of case studies focusing on employers' perceptions of what contract research staff and research students have to offer. The project seeks to identify both positive and negative aspects – illustrating employers' hopes and concerns. Outcomes: a number of case studies accessible to contract research staff and students with information that could be used independently, or incorporated into existing career development sessions and materials, helping them to assess their own employability and to understand the position of employers.

A broader outcome was to help inform departmental and senior management within the University of some of the challenges facing researchers considering external posts – whether from desire or necessity.

A total of 116 questionnaires were mailed to organisations currently held on the Careers Centre database. Forty-seven employers responded, representing a broad range of size and sector. Twenty-six of these were followed up by telephone. No differentiation is made between data collected by questionnaire or by telephone. Ten employers were chosen for specific detailed interview. In addition, a small number of academic responses were sought to answer a key question relating to the university's responsibility in the holistic development of researchers. A number of the initial findings formed the basis for four focus groups comprising junior and experienced (post qualification) researchers. There were also ten case studies, for which the sector was specified.

14. The employment of Social Science PhDs in academic and non-academic jobs: research skills and postgraduate training (Purcell and Elias 2006)

The Training and Development Board (TDB) of the Economic and Social Research Council (ESRC) specified the brief for this project, *“to review the needs of non-academic employers for highly-qualified social scientists”*. As the research for this review progressed and as the authors discovered more about the career development and employment outcomes of those who had completed PhDs, they amplified the scope of the investigation to encompass broader issues that need to be considered by those responsible for the provision, coverage and delivery of postgraduate research programmes in the social sciences. The title of the report reflects this wider investigation.

The objectives of this research were to examine:

- where and why recent social science PhD-holders had obtained employment outside higher education
- how far those who were in such employment were using the skills and knowledge developed as postgraduate research students
- how far such research skills are sought by employers beyond academia
- how far non-academic employers are aware of changes in the research degree syllabus
- how such changes have affected (or are likely to affect) their recruitment of highly qualified social scientists.

15. 'Survey of employer attitudes to postgraduate researchers' (McCarthy and Simm, 2006)

The focus of the survey was to explore attitudes to the recruitment of PhD researchers in non-academic environments. The aims of this survey were twofold; to inform the training and professional development programme on offer to researchers of the University and to explore attitudes to the recruitment of PhD researchers in non-academic environments. This approach flowed from data (own destination data and national data) showing that less than 40% of researchers remain in academia following their PhD. The list of potential respondents was taken from the Careers Service database of recruiters with strong links to the University. In total, 1436 questionnaires were emailed and 397 sent by post. One-hundred-and-four responses were received (5.7% response rate), making this one of the largest surveys of its kind undertaken by a single university in recent years.

16. Recruiting PhDs: What works?⁵⁵ (UK GRAD, 2006)

The objective of this study was to present case studies of recruitment practices, initiatives and support that are particularly effective. The study aimed to provide a guide for employers and university career services about the best ways to target, recruit and support newly qualified PhD graduates.

As part of the project, the researchers worked with three groups to obtain a range of perspectives of the non-academic recruitment market for PhD graduates. The groups were:

1. *Employers* who shared information about PhD graduate recruitment practices for jobs that build directly on researchers' specific technical skills and knowledge. They also talked to those wishing to recruit PhD graduates for their higher level generic skills, such as their problem-solving ability.

For this project they identified three different types of employer organisations:

- employers who regularly employ newly qualified PhD graduates
- employers who have recently started to employ or are thinking about employing newly qualified PhD graduates
- employers who have not considered targeting PhD graduates as a cohort.

They interviewed companies in the first and second groups in order to capture experiences from those who are currently actively targeting PhD researchers. The results of the study aim to inform and to be useful to all groups.

2. Careers services provided information about their activities with PhD researchers and employers.

3. Final year PhD researchers, and recently employed PhD graduates, shared their opinions and experiences of finding work outside of academia.

This qualitative study gained information from the three groups by case study interviews and visits with employers who recruit newly qualified PhD graduates. Eleven employers, predominately large companies, were involved and 24 interviews completed with recruiters, managers and newly hired PhD graduates.

⁵⁵ www.grad.ac.uk/publications

Employers' views of researchers' skills

Two web-based focus groups with final year PhD researchers facilitated a discussion of their experience of looking for work outside academia. The discussions ran over three days and involved 21 participants from 12 different universities. Each day of the discussion focused on a different aspect of their experience of looking for work. Telephone interviews were conducted with careers advisers from six universities (Birmingham, Bristol, Leicester, Manchester, Nottingham and Sheffield).

Additional interviews were conducted with a recruitment consultancy specialising in placing PhD graduates, the Career Management Service at the University of Reading and the manager of the Engineering Graduate Centre, University of Nottingham.

The final research findings present case studies of recruitment practices, initiatives and support that are particularly effective and recommendations to university careers services, employers and researchers.

The Rugby Team

evaluating the impacts of
developing researcher skills

The Rugby Team is a sector-led working group, which was set up following the UK GRAD Programme Roberts Policy Forum in Rugby in January 2005.

The mission of the group is to propose meaningful and workable ways of evaluating the effectiveness of skills development in early career researchers (this includes both postgraduate researchers and research staff in the first ten years of their research careers).

Membership of the Rugby Team is drawn from a cross-section of HEIs and other stakeholders interested in the personal and career development of researchers. Terms of reference, membership and appropriate projects are agreed each year following the recommendations of the annual Roberts Policy Forum. The Rugby Team reports back on progress and outputs to the subsequent Policy Forum.

To ensure as wide an input as possible the Rugby Team also operates a Virtual Consultation Group (VCG); membership of this group is open to all. The views of this broader group are sought through the UK GRAD bulletin board www.grad.ac.uk/bulletinboard and email. To join the VCG contact admin@grad.ac.uk

For more information on Rugby Team activities go to www.grad.ac.uk/rugbyteam



The UK GRAD Programme provides management support and resources to the Rugby Team.

The role of the UK GRAD Programme is to support the academic sector to embed personal and professional skills development into research degree programmes. Our national Centre for Excellence and a network of regional Hubs support growing networks of universities, employers, supervisors, training professionals, academic administrators, careers services and others interested in developing researchers.

Our vision is for all postgraduate researchers to be fully equipped and encouraged to complete their studies and to make a successful transition to their future careers. The UK GRAD Programme has a key role in enabling them to realise their potential.

As part of this remit, UK GRAD has run an annual Roberts Policy Forum since 2004. The aims of these events are to:

- engage participants in a strategic review of the implementation of Sir Gareth Roberts recommendations in SET for Success on the training requirements for postgraduate researchers and research staff
- contextualise skills and career development of researchers within the wider UK challenges of a developing knowledge economy.

Following the recommendations of the 2005 Policy Forum, UK GRAD set up and subsequently has supported the Rugby Team and its various projects.

For further information about the range of UK GRAD activities go to www.grad.ac.uk or contact admin@grad.ac.uk

