7.3 Perceived lack of careers support

Although, overall, at least 40% claimed that they had never used their higher education careers service, 65% of respondents reported that they would have benefited from additional careers advice and support at some stage, slightly more so for those from outside the UK. There were also moderate differences by discipline group, with around 70% of UK respondents in social sciences and education reporting that they would have benefited from additional support at some stage, and rather fewer (55%) in physical sciences (Figure 7.2).

Respondents were also asked at which stages they would have liked the advice or support. Overall, 46% of UK respondents reported that they would have benefited from additional careers support before they went to university, and 36% while they were postgraduates (Figure 7.2). Slightly higher proportions of UK respondents in social sciences and biological sciences (43%) felt they would have benefited from additional career support while they were postgraduates.

Interestingly there was also a moderate difference by gender. More female respondents than males reported that they would have benefited from additional careers advice and support (69% compared to 59% respectively). The gender difference persisted across all discipline areas and, therefore, was not just a function of the different proportion of male and female respondents working in the different discipline areas.

Half the female respondents believed they would have benefited from additional careers support both before they went to university and while they were undergraduates, compared with about 40% of males, in each case. The gender difference was less marked for postgraduates, however, with 42% of female respondents compared to 36% of males reporting that they would have benefited from additional careers support as postgraduates. Nevertheless this gender difference was found at all levels in all disciplines with just a couple of notable exceptions. Female respondents in engineering/technology were less likely than males to feel they would have benefited from additional careers support as postgraduates (36% compared to 41%) and the difference between male and female respondents in the physical and social sciences was also negligible. It may be that this is because many female researchers working in male-dominated fields such as some of these have made more considered career decisions.

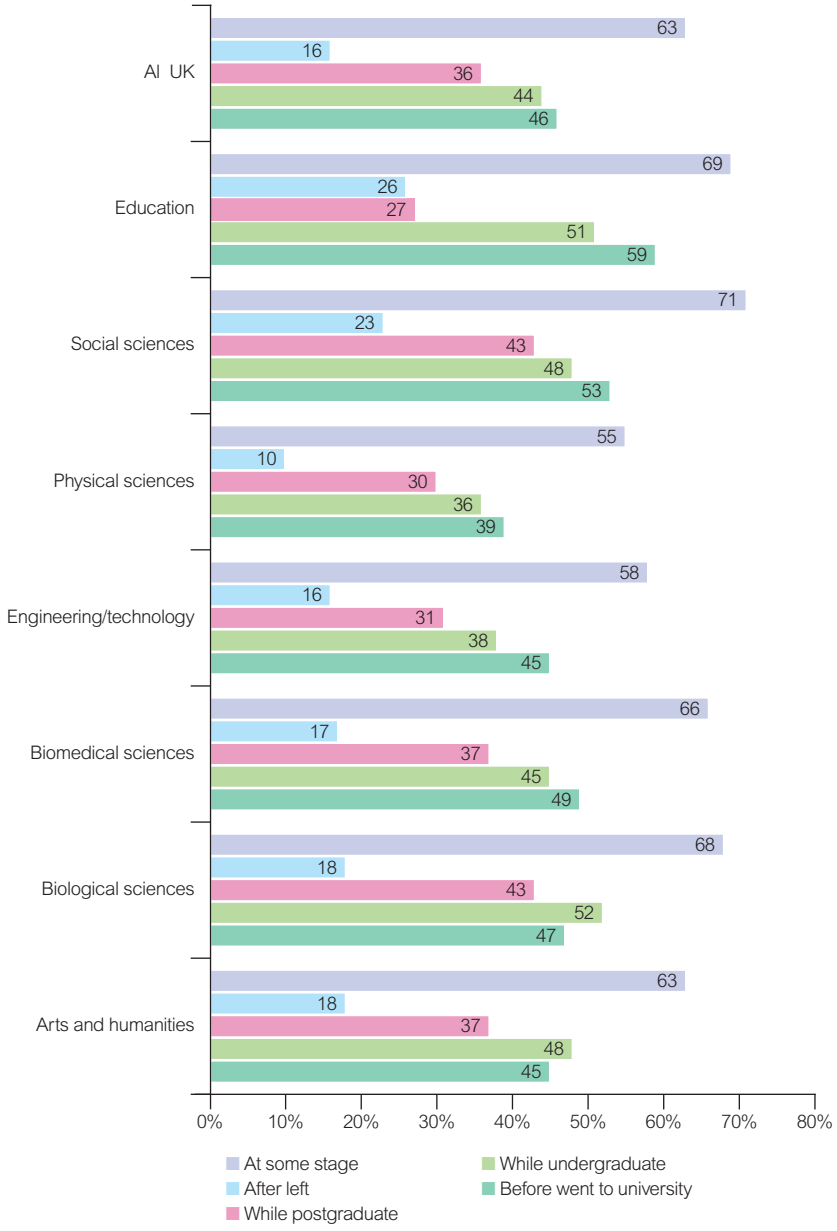

Figure 7.2 Stage at which respondents would have benefited from more careers advice and support, by discipline: all UK respondents

7.4 Summary of attitudes to formal careers support

To summarise this section, only a minority (about a third) of final year doctoral researchers seem to have used their university careers service as postgraduates, and even fewer of the part-time researchers at a similar stage. Slightly more of those from outside the UK had done so, which contrasted with the trend in use of similar services as undergraduates, where considerably more (nearly half) of UK respondents had used their service than had foreign nationals.

40% of UK final year researchers had never used a university careers service at all, but as many as two thirds report that they would have benefited from additional careers support at some stage; this seemed to be somewhat higher for females than males. Despite the rather uneven pattern of usage of careers services, most of those who had used these services considered that they had been helpful.

8 Overall findings and recommendations

Researcher profiles and trajectories

The doctoral cohort in this study was very heterogeneous, with postgraduate researchers in different disciplines having differing profiles in terms of age or gender and very varied career trajectories and experiences prior to their postgraduate research.

Only a minority of respondents undertook doctoral research directly after their undergraduate degree, although this was highest (c.40%) in physical and biological sciences, and very low in arts and humanities or education. For the majority, the proportions that entered research from a Masters degree or from employment also varied strongly by discipline field.

Despite the range of differing career trajectories prior to doctoral research, around a third of respondents undertook their research at the same university as their first degree. Although there were modest flows between the different institutional types, the majority remained within the type of university in which they studied their first degree.

Current career intentions

The study confirmed that the great majority of doctoral researchers in this cohort were satisfied with their decision to undertake postgraduate research, and wished to pursue careers and occupations which were related to their research discipline, predominantly on the grounds of continuing personal interest and being able to apply their specialist knowledge and high-level expertise.

Only around a third of respondents in the later stages of their doctoral programmes had definite ideas about their future careers, half were considering several alternatives, while about one in six still had little or no idea.

Of those with definite ideas, around half would ultimately like a career in higher education, whilst a quarter would like a career in research outside higher education. Of respondents considering several career alternatives up to half were thinking about research outside higher education.

Significantly higher proportions of respondents from biomedical sciences and engineering/ technology than in other disciplines anticipated careers outside research, although of these the majority sought occupations and employment sectors related to their discipline. Higher proportions in physical or biological sciences, and more especially in arts and humanities, aspired to careers in higher education.

Very few were actively considering careers unrelated to their research discipline, but those that did tended either not to have enjoyed their research or had become interested in something else. Issues like the availability of jobs, remuneration and career progression were not the main driver for the change, but were much more significant factors for those who were unsure of their future direction.

The pattern of long-term career intentions bore some resemblance to the broad pattern of known career destinations measured three and a half years after graduation; indicating some progression along their intended path. However, with likely over-supply of those seeking to enter higher education careers, this could suggest that fall-out will occur for many after one or more postdoctoral positions.

Recommendation: The wide range of career options available to doctoral researchers should be highlighted during undergraduate and postgraduate degrees.

Development of career thinking and commitment to research

Very few doctoral researchers had well-formed career ideas when they entered university for their first degree. The attraction of academia and/or research developed during their undergraduate education, which coincided with the time that they would be targeted by corporate graduate recruiters looking for strong graduates. Assuring a continued supply of the highest calibre graduates into research may require more overt promotional efforts to counter those competitors, particularly with the impact of higher fees.

The overwhelming majority chose to undertake doctoral research for intellectual curiosity and interest, rather than career-related reasons. Prior to commencing doctoral research very few had seen it as necessary for their career. As so few have research as a career goal before they enter university, there must be scope to promote research as an interest-rich career to young people prior to higher education, as recommended by Thrift[34]. This may be increasingly important as more graduate employers introduce recruitment programmes for school-leavers, with the aim of identifying and recruiting good graduates prior to university and supporting them during their degree.

Recommendation: In order to assure a flow of talent into research in higher education and beyond, government, funders and institutions should consider how to most effectively promote research careers to young people.

Recommendation: Institutions should explore how to promote doctoral research opportunities and research careers to high-calibre students, in the light of potentially increasing competition from employers from non-higher education.

Practical actions and value of the doctorate

Relatively few doctoral researchers had actually applied for specific jobs/positions even at the later stages of their research, suggesting that most left this until after completion of their doctorate. Of those with job offers prior to completion, the majority had postdoctoral research positions within higher education.

Around 90% overall thought that their doctorate would be important if not essential in achieving their career aspiration. Given the choice again, three quarters of doctoral researchers would undertake the same or similar doctoral programme again, and fewer than 1 in 10 would not undertake research at all, irrespective of discipline. There was a slight but distinct trend in all disciplines for satisfaction levels to fall in later years of doctoral research.

Recommendation: Further longitudinal research into the value of a doctoral qualification in relation to obtaining employment and progression beyond four years should be conducted to give researchers a fully balanced view of the value of their qualification as they consider career directions and opportunities.

[34] Thrift, N (2008) Research careers in the UK: a review. London: Department for Innovation, Universities and Skills www.dius.gov.uk/higher_education/shape_and_structure/he_debate/research_careers.aspx

Careers advice and guidance

Only about a third of UK final-year doctoral researchers had used their higher education careers service as postgraduates, substantially less than did so as undergraduates, while international postgraduates tended to use it more. Around 40% claimed never to have used a university careers service at all. Yet two thirds felt they would have benefited if they had used a careers service at some stage, especially female respondents.

High proportions of those researchers who had used a university careers service had found it helpful, irrespective of when they accessed it, their current discipline or study mode.

Recommendation: Institutions, and especially careers services, should consider how to encourage doctoral researchers to use the information, support and advice available to them through the careers services, and to engage earlier and more proactively in achieving their career aspirations.

Work experience

There seems to be a contrast between different disciplines when it comes to the level of work experience relating to postgraduate study that had been undertaken by doctoral researchers. A majority of those in education and social sciences had done so, compared with only low proportions in biological and physical sciences. The trend persisted even when accounting for different prior employment profiles of those in different disciplines. Interestingly this was the reverse of the position during their undergraduate education, where over half in several sciences did have degree-related work experience. Overall, at least a quarter appeared to have no study-related work experience at all during higher education. Four fifths of those with work experience reported that it has had an effect on their career decision-making

Recommendation: Institutions should consider how to develop, provide and promote opportunities for work placements and create opportunities for researchers in all disciplines to interact with businesses and other external organisations.

Appendix: Sample parameters and profile of respondents

The key background characteristics of the doctoral researchers who responded to this survey, including gender, nationality and discipline of research were reviewed. This provided some understanding of the backgrounds of the respondents, which was used in our exploration of the career thinking and career development of these doctoral researchers. It also provided an indication of how representative the sample of respondents was of the overall UK doctoral research cohort, through comparison of certain demographic data with those of the overall cohort. This representativeness issue may be significant given the particular sampling strategy used in the research.

Responses to the survey and key sample characteristics

A total of 4,550 postgraduate researchers responded to the survey. Once duplicate responses (20), incomplete responses (204), respondents from non-UK universities (19) and respondents studying for research Masters degrees (9) were excluded, the responses from 4,298 doctoral researchers were retained as the final sample for analysis. 40% of these were in response to invitation emails, mostly to Research Council funded postgraduate researchers, and the remainder in response to other attraction methods such as website notices and forwarding via networks.

Domicile

Overall, 65% of respondents were from the UK, almost equal numbers from the EU/EEA countries or the rest of the world (RoW) with 15.5% each, while 4% did not answer this question. Table A.1 provides a breakdown of respondents by year of study, discipline and nationality. Compared with HESA data[35] (57% UK, 14% other EU, 29% RoW), the response sample has a somewhat higher proportion of home (UK) researchers and a correspondingly lower RoW proportion.

Stage of study

The small number of respondents who reported that they were writing up, waiting for their viva or had just completed, were coded as being in their final year, while researchers studying part-time were coded to nearest full-time equivalent year. Just over half (55%) were in their first or second year and 33% in their final year, while 12% were in the third year of four; for some analyses the latter were combined with the final year group. The sample therefore seems to give a good balance of those at relatively early stages in their research and those who were approaching completion and who might be considering next steps.

Discipline of research study

As Table A.1 indicates, the researchers were grouped into seven broad discipline groups, coded from respondents' allocation of their field of research into 19 JACS discipline code areas. This matches the classification used in Vitae's 'What do researchers do?' reports[36], to facilitate comparisons, with the exception of physical sciences which is shown here separate from engineering/technology, partly due to the large number of responses from those in physical sciences (23%).

Comparison with HESA data (in the column headed 'UK cohort') suggested a good representation was achieved by discipline, although with some over-representation of those within physical sciences and under-representation of those in social sciences; this presumably resulted from the focus of the sampling strategy.

Table A.1 Nationality of respondents, by year of study and discipline group (%)

Year of Study	UK		EU/EEA		RoW		All respondents		UK cohort	
	Number	%	Number	%	Number	%	Number	%	Number	%
First/second year	1524	54	352	53	393	59	2353	55		
Third year of four	371	13	68	10	72	11	531	12		
Final year	912	32	249	37	197	30	1406	33		
Other	6	0	0	0	2	0	8	0		
Total	2813	100	669	100	664	100	4298	100		
Discipline										
Arts and humanities	493	68	104	14	99	14	722	17		16
Biological sciences	440	71	102	16	62	10	620	14		13
Biomedical sciences	467	68	111	16	88	13	686	16		14
Engineering/										
technology	315	58	68	13	129	24	541	13		14
Physical sciences	692	69	156	16	120	12	997	23		18
Social sciences	294	53	106	19	132	24	558	13		18
Education	112	64	22	13	34	20	174	4		7
Total	2813	65	669	16	664	15	4298	100		100

[35] HESA (2010) Resources of Higher Education Institutions 2008/2009. Cheltenham: Higher Education Statistics Agency www.hesa.ac.uk/

[36] Vitae (2009) What do researchers do? First destinations of doctoral graduates by subject. Vitae www.vitae.ac.uk/wdrd

Table A.2 Gender and age by discipline group (%)

Gender	Arts and humanities	Biological sciences	Biomedical sciences	Engineering/ technology	Physical sciences	Social sciences	Education	All
Male	35	35	32	68	54	38	31	43
Female	61	63	65	27	43	58	66	53
Not answered	3	2	2	4	3	4	3	3
Age group								
21 to 25	21	46	35	36	48	15	5	34
26 to 30	37	35	33	41	34	34	16	35
31 to 35	12	8	11	9	8	17	14	11
36 to 40	6	4	7	4	3	9	17	6
41 to 45	4	2	4	3	1	8	14	4
46 to 50	6	0	4	1	1	7	14	3
Over 50	9	0	2	1	1	5	17	4
Not answered	5	3	4	6	4	6	3	5
Total cases	722	620	686	541	997	558	174	4298

Gender

The majority of UK respondents (55%) were female which varied slightly from some recent figures for UK postgraduate researchers (50%, PRES 2011; 46% HESA 2009/10)[37]. A slightly higher proportion of EU/EEA respondents (59%) and lower proportion of those from RoW (49%) were female. Table A.2 provides a breakdown of the gender of respondents by discipline and shows that only 27% of engineering/technology respondents and 43% of physical scientists were female. In all other discipline groups women were in the majority.

Age

Overall, about two thirds (69%) of respondents were aged 30 or under, but only 21% of those in education, 49% in social sciences and 58% in arts and humanities were in this age category. In contrast, 82% of physical scientists and 81% of biological scientists were aged 30 or under. This is a somewhat younger age profile than was obtained in PRES (2011) where 59% were aged 30 or under (overall), and this difference too may reflect the particular sampling strategy within our study.

Researchers from the UK were generally younger than those from the EU/EEA or RoW with 43% aged 25 or under compared to 20% of those from the EU/EEA and 17% from RoW. However, more of the UK researchers were also aged over 40 (14%) than those from the EU/EEA (5%) or RoW (9%). The median ages of researchers were: UK 26 years, EU/EEA 28 years and RoW 29 years.

Ethnicity and disability

In terms of ethnicity, 87% of UK respondents were white British, 5% from other white backgrounds and 8% from other minority ethnic backgrounds. 5% of all respondents reported that they had a disability or other long-term health condition that might affect their employment prospects.

Mode of study

Table A.3 shows that 13% of respondents were studying part-time, the proportion ranging from 52% in education and 21% in arts and humanities to 5% in physical sciences and engineering/technology and 6% in biological sciences. This was lower than the available comparable figures of 29% for 2008/09[38] or 19% in PRES (2011). Because HESA classifies postgraduate researchers who were writing up as part-time, both our survey and the PRES results will under-represent part-time researchers slightly by comparison. Within this sample, most (73%) of the part-time respondents were from the UK, close to the proportion recognised by HESA39 (75%); this equates to 15% of all UK respondents reporting that they were part-time.

Overall, more female researchers (15%) were studying part-time than males (11%) but this difference disappears once discipline differences were taken into account, with no significant differences in the percentage of male and female researchers studying part-time within individual discipline areas.

[37] HEA (2011) Postgraduate Research Experience Survey: 2011 results. Higher Education Academy www.heacademy.ac.uk/assets/documents/postgraduate/PRES_report_2011.pdf

[38] HESA (2010) Resources of Higher Education Institutions 2008/2009. Cheltenham: Higher Education Statistics Agency www.hesa.ac.uk

Table A.3 Respondents by discipline group, mode of study and programme (%)

Discipline of Study	PhD/DPhil	Professional doctorate	Full-time	Part-time	All respondents	
	%	%	%	%	Number	%
Arts and humanities	100	0	79	21	722	17
Biological sciences	100	0	94	6	620	14
Biomedical sciences	95	5	85	15	686	16
Engineering/technology	87	13	95	5	541	13
Physical sciences	99	1	95	5	997	23
Social sciences	97	3	82	18	558	13
Education	71	29	48	52	174	4
All respondents	96	4	87	13	-	100
(N)	4110	188	3726	561	4298	-

Table A.3 also shows that 96% of all respondents were studying for a PhD/DPhil and 4% for a professional doctorate. Professional doctorates were predominantly in education (29% of its doctoral researchers) and engineering/technology (13%), and significant in biomedical sciences (5%), with tiny numbers in other disciplines. A similar figure of 4% overall has been reported for PRES respondents[39].

Institution type

The respondents were from 130 different UK universities and research institutes, including all institutions within the Russell and 1994 Groups. Numerically, 56% of respondents were studying at a Russell Group university, 23% at a 1994 Group university and 22% at other UK universities and research institutes. This was quite close to the known national cohort breakdown, within which 50% of recent doctoral researchers were in Russell Group institutions, 20% in the 1994 Group and 30% in other institutions[40], although the Russell Group has recently reported that in 2008-09, 57% of doctorates in the UK were awarded to researchers in its institutions.

How well the sample represents the cohort

We consider that the sample obtained is reasonably representative of the UK cohort of doctoral researchers, based on the similarity of many of the characteristics outlined above, such as gender, age, type of institution and discipline of study. The slight over-representation of those studying physical sciences and engineering/technology almost certainly reflected strength in responses from Research Council funded postgraduate researchers, to whom invitation emails were sent directly.

In terms of statistical significance, receipt of c.1,750 responses from around 13,000 Research Council funded postgraduate researchers targeted was a response rate of over 13%; an overall rate cannot be calculated because the total number of invitations sent was unknown, due to using multiple, potentially overlapping networks. However, a random sample of 4,298 respondents within a total UK cohort of around 82,000[41] would indicate a confidence interval of around 1.5% at a confidence level of 95%. Compared with HESA's reported number of doctoral qualifiers for a recent year (17,500 in 2008-09), the sample of over 1,400 final-year respondents is particularly strong.

[39] HEA (2011) Postgraduate Research Experience Survey: 2011 results. Higher Education Academy www.heacademy.ac.uk/assets/documents/postgraduate/PRES_report_2011.pdf

[40] HEFCE (2009) PhD Study: Trends and Profiles 1996-97 to 2004-05. Bristol: Higher Education Funding Council for England www.hefce.ac.uk/pubs/hefce/2009/09_04

[41] HESA (2010) Resources of Higher Education Institutions 2008/2009. Cheltenham: Higher Education Statistics Agency www.hesa.ac.uk/

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.

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- empower researchers to make an impact in their careers
- evidence the impact of professional and career development support for researchers.

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