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Straight talking:

the role of non-specialist advice and networking in career conversations for researchers

Vitae is supported by Research Councils UK (RCUK),
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Executive summary

Career development depends upon what we know and who we know. However, it also depends on whether the people we know have the skills, knowledge and motivation to offer us career help, and on our ability to elicit that help from them. Social aspects of career development can play a crucial role, where individuals benefit from connections and interactions within and between networks.

This research aimed to further understanding of the social aspects of researcher career development. Specifically, it was designed to identify:

- the specific career-related benefits research staff most value from their social contacts, the extent to which these are forthcoming, and from whom
- the strategies researchers use to develop social contacts and achieve these benefits, and the personal and structural limitations they experience in doing this
- the specific networking skills researchers believe they do and do not have
- the implications of all of the above for the career support provided to research staff, as well as the strategies researchers can use to help themselves.

An online questionnaire was completed by 492 researchers in eight UK universities representing Russell Group, 1994 and post 1992 group institutions across the UK. Interviews were conducted with 46 researchers, and 18 staff who had responsibility for researcher career development.

Key findings:

- Respondents would value more career help, notably personalised help such as:
  - discussions about their strengths and weaknesses
  - help in making contact with key people in the discipline outside their institution
  - coaching in skills/techniques that will be useful in their future career
  - opinions and/or suggestions that will help them shape their future career
- Respondents sought career advice mostly from those closest to hand, particularly family and friends and supervisors/principal investigators (PIs). Researchers recognised that not all PIs have high levels of skill and motivation to provide career assistance. Nevertheless, helpful PIs were greatly valued. Careers provision in higher education institutions was seen as remote by many and was much less utilised, although it was appreciated when used
- It was common for respondents to have reservations about networking for career development. Many respondents had contacts in a range of geographical locations and employment sectors but seemed reluctant to make use of these. Reluctance stemmed from a reported lack of time, but also a lack of self-confidence and an aversion for perceived artificial or contrived relationships.

Summary of key recommendations:

Based on the findings, a range of recommendations were directed towards three main groups: staff in higher education institutions developing researchers' careers, principal investigators and researchers themselves. These are outlined in full in Section 5.4.

- To the extent that resources allow, institutions should offer personalised careers support, and focus on communicating opportunities to researchers, for example through local 'career champions' in individual schools/departments
- Recognising that researchers are likely to continue using the people closest to them for career advice, institutions should consider offering training for researchers in how to get the best help possible from those around them
- Institutions should consider running appropriately designed and carefully prepared mentoring or peer mentoring schemes which are likely to be valuable for researchers
- Training and guidance for researchers on networking for career development should be reviewed by institutions to ensure that it helps researchers address the specific barriers to networking identified by this study
- Principal investigators should be encouraged to reflect on their role in providing career guidance for their researchers, to recognise their potential as a positive influencer and be supported with training if required
- Researchers should be encouraged to look beyond their day-to-day contacts to their wider network as sources of careers assistance and, if they are reluctant networkers, to take advantage of support mechanisms such as mentoring schemes, training courses and peer support groups
- Researchers should be encouraged to recognise that career help from other people, a positive approach to networking and a large and well-spread network can all contribute to career satisfaction and have tangible career benefits

1 Introduction

It is a cliché to say that career development is a case of who you know, not what you know. Although this stark contrast between 'what' and 'who' is exaggerated, it has some truth. This is especially the case in an era of increasingly self-driven[1] and boundaryless[2] careers.

Kidd, Hirsh and Jackson[3] analysed accounts of useful career discussions determining that useful dialogues were had with a wide range of people, whose attributes included interest, commitment and trustworthiness, and an ability to provide information. Higgins and Thomas[4] also advocate "constellations of developmental relationships". In the context of higher education institutions, this could include other researchers, principal investigators (PIs), research group/lab leaders, institution staff with a remit for researcher development (including careers officers), prominent researchers in the field, staff at Research Councils, journal editorial board members, and many more. In addition, mentors with no direct line management responsibilities may provide additional potential benefits including (amongst other things) a role model, a listening ear, visibility to decision-makers and awareness of job opportunities.

Academic research on the social aspect of career development and its importance for career success includes 'Knowing Who' competencies[5], which concern the development and use of relationships with other people who can help with career decisions. Other analysts prefer the term social capital, which concerns the social resources that a person can access and utilise[6]. In a meta-analysis of research on career success, Ng and colleagues found that aspects of social capital such as career support from supervisors and other influential people was consistently associated with career satisfaction[7]. Luthans, Hodgetts, and Rosenkrantz found that, amongst managers, time spent on networking was associated with occupational success[8].

The Concordat to Support the Career Development of Researchers[9] is the main reference point for formulating and evaluating the career development of researchers in UK higher education institutions (HEIs) with principles 3, 4 and 5 addressing both researcher and employer responsibilities regarding career development.

This project aims to identify:

- the specific career-related benefits research staff most value from their social contacts, the extent to which these are forthcoming, and from whom
- the strategies researchers use to develop social contacts and achieve these benefits, and the personal and structural limitations they experience in doing this
- the specific networking skills researchers believe they do and do not have
- the implications of all of the above for the career support provided to research staff, as well as the strategies researchers can use to help themselves.

Two opposing 'common-sense' views of researchers' career management provide a starting point for investigation.

One view is that researchers might not be the most active or effective users of other peoples' help in their careers, for a number of reasons. Firstly, researchers tend to be employed on specific projects with high pressure to produce results within the time and budget available. Therefore researchers and their bosses will both be inclined to focus on short-term task completion rather than longer-term career development. Secondly, researchers tend to be interested in their discipline or some part of it. They may therefore become highly focused on a small range of topics in a world inhabited by a small number of probably rather similar people. Thirdly, researchers may tend to believe that opportunities are apportioned rationally and objectively with those who can demonstrate the strongest research track record being given opportunities. It is not hard to find references to these three impressions, and others like them, in the literature on researcher careers. The bureaucratic nature of universities might also encourage researchers to believe that careers are played out through formal processes and procedures, not through 'who you know'.

The opposing view is that researchers might be active and skilled users of other peoples' help in their careers. One could argue that researchers are the original 'portfolio' career workers[10]. Being purposeful in this is crucial to them. Also, most researchers routinely come into contact with (or at least get to hear about) people outside their own institutions as they go about their work. This is an advantage to them that they can use to enhance their future opportunities. Another potential advantage is that they work closely with their principal investigator (PI). Hence there is at least one person who knows the researcher well and should be able to be helpful in supporting career development. There are plenty of people whose job it is to bring career imperatives to the attention of researchers in UK HEIs, particularly following Roberts funding.

From our review of the literature, policy and current practice however, there seems to be some reason to expect that researchers will not be especially active in eliciting career help from other people. To the extent that they do, these people are likely to be predominantly those the researcher comes into contact with day by day (PI, friends and family or colleagues in the same department).

There is a strong perception that a researcher's PI is a key resource in the researcher's career development illustrated in the following comments[11]:

"Principal investigators [are] key to research career development"

"..the real power to make a difference to researchers' careers lies with the researchers themselves and with you, their PIs".

For researchers, the PI normally has the advantages of easy availability and considerable experience. The CROS 2011 results[12] indicate that the PI is the most consulted person about both immediate training and development needs (72%) and longer term career planning (64%) by researchers. Colleagues and partner/family/friends were consulted on careers by 57% and 49% of researchers respectively. That does not mean of course that the PI always gives a high priority to helping the researcher develop their career.

1 Hall, D. T. (2002). Careers In and Out of Organizations. London: Sage.
2 Arthur, M.B. and Rousseau, D.M. (Eds) (1996) The Boundaryless Career. Oxford: Oxford University Press.
3 Kidd, J. M., Hirsh, W., & Jackson, C. (2004). Straight talking: the nature of effective career discussion at work. Journal of Career Development, 30, 231-245.
4 Higgins, M. C., & Thomas, D. A. (2001). Constellations and careers: toward understanding the effects of multiple developmental relationships. Journal of Organizational Behavior, 22, 223-247.
5 Eby, L.T., Butts, M. and Lockwood, A. (2003) Predictors of success in the era of the boundaryless career. Journal of Organizational Behavior, 24, 689-708.
6 e.g. Tymon, W.G., and Stumpf, S.A. (2003). Social capital in the success of knowledge workers. Career Development International, 8 (1), 12-20.
7 Ng, T., Eby, L.T., Sorensen, K.L., and Feldman, D.C. (2005). Predictors of objective and subjective career success: A meta-analysis. Personnel Psychology, 58, 367-408.
8 Luthans, F., Hodgetts, R. M., & Rosenkrantz, S. A. (1988). Real managers. Cambridge, MA: Ballinger.
9 www.researchconcordat.ac.uk/
10 Handy, C. (1990). The Age of Unreason. Boston: Harvard Business School Press.

A noted human resource management issue is that line managers do not always want to play a part in the development of their team members[13]. They may regard that as someone else's job, and what's more, one that should be done only if the immediate pressures of task completion permit[14].

So any shortfalls in the amount and types of career help researchers report may not be entirely a consequence of the researchers' inactivity. Meanwhile, staff in units such as research offices, careers services and professional development are generally very keen to reach out to researchers. However, perhaps because they are not usually very close to researchers' day to day work environments, these staff often find it difficult to elicit good take-up of their services.

This project is designed not only to test these suppositions, but also to extend our understanding of this area including:

- what kinds of careers help do researchers report being available, and what are the sources of this help?
- what kinds of help would researchers like more of?
- how much do researchers use different people for distinct kinds of career help?
- which specific networking activities do researchers engage in, and what are their perceived barriers to these activities?
- what is the nature of researcher networks, and can this be related to their networking activities and their career satisfaction?

2 Methodology

The team recruited eight universities to participate in the project. These consisted of two Russell Group[15], three 1994 Group[16], and three post-1992 institutions. One was in Scotland, one in Wales, and six in well-spread out locations in England. Some were in large cities, others not.

The project data were collected using an online questionnaire for researchers, plus interviews with a subset of the researchers and also staff with responsibility for facilitating researchers' career development. Questionnaire and interview questions were developed using ideas and insights from many sources. These included academic work (especially on networking, mentoring and informal helpers), the Careers in Research Online Surveys (CROS surveys)[17], Vitae publications and blogs, and the observations of our contacts within universities. Piloting of the survey took place at Loughborough University, firstly with researchers from the School of Business and Economics and then with researchers from across the university.

From the 3,120 invitations to participate that were sent out, 492 completed questionnaires were received. The overall response rate was 15.8%, with institutional rates ranging between 11.1% and 31.5%. When added together, the researcher populations of our eight participating universities quite closely matched the overall UK HEI population of researchers in terms of age, ethnic affiliation, gender and disability[18]. Female respondents were over-represented (three out of every five). Three quarters of the respondents were on a fixed-term employment contract. Median tenure at their university was 3-4 years. About one in eight respondents reported an ethnic affiliation other than white. About one in 16 respondents indicated that they had a disability. The majority of respondents (80%) were from four broad subject areas: social and business studies (12%), medicine and allied subjects (21%), biological sciences (28%), and physical, computing and mathematical sciences (19%). Smaller but not negligible numbers were in engineering and technology (13%), and arts and humanities (8%). Just over half the respondents were aged 30-39, with just under a fifth each in their 20s and 40s. More than one in ten respondents was at least 50 years old.

More than two thirds (69%) of respondents had a doctoral qualification with more than one in five (22%) seeking an academic lecturing career. Career intentions were grouped into three main categories: 'research' (which included those prioritising university research only, those prioritising research outside the higher education sector and those equally favouring both university research and lecturing), 'university lecturing' and 'other'. The other category included those who wanted to work in the same field, but not in teaching or research, and those wanting to move into something quite different.

The interview schedules for researchers and staff with responsibility for researcher career development were designed to complement the questionnaire data. A total of 46 researchers were interviewed (typically six per university). All were interviewed individually, 44 face to face and two by phone. Eighteen staff with responsibility for researcher career development were interviewed (up to three per university and all face to face).

The Appendix contains a fuller description of the study methodology and respondent characteristics and representativeness.

[11] Papworth, T. (2009/10). Principal investigators key to research career development. In Overview for supervisors and principal investigators, Vitae, winter 2009/10.

[12] www.vitae.ac.uk/cros

[13] Dick, P, & Hyde, R. (2006). Line manager involvement in work-life balance and career development: Can't manage, won't manage? British Journal of Guidance and Counselling, 34, 345-364.

[14] Stainton-Rogers, W., & Milson, S. (2005). A Guidance Pack before its time – career development for contract researchers. In Kent, R., & Hazlehurst, S. (Eds) Great Expectations: Managing and Developing Contract Research Staff. London: ARMA. pp. 13-15.

[15] www.russellgroup.ac.uk

[16] www.1994group.ac.uk

[17] www.vitae.ac.uk/cros

[18] See Appendix for more detail. Respondent characteristics are compared to figures from CROS 2009/2011 and HESA.

3 Questionnaire results

3.1 Sources of career help

The availability of, and wish for, a range of types of career help for researchers from a range of sources was analysed. Figure 3.1 shows that 12 of the 13 types of help queried in the survey were available on average somewhere between 'A little' and 'Quite a lot'. Only the statement 'Someone to speak on your behalf with people who might be able to offer you a job' received a lower mean score (<2)[19]. The most available type of help was 'Information about opportunities for training or personal development', reported by 70% of respondents ('Quite a lot' or 'A great deal'). Only this item and 'Coaching in skills/techniques that will be useful in your future career' had more than half the respondents reporting at least 'Quite a lot' of availability. Help in developing contacts within the university and information about job opportunities were relatively highly rated, with just under half of respondents reporting 'Quite a lot' or 'A great deal' of availability.

It is probably not surprising that the least available forms of help concerned direct routes to getting a job[20]. More surprising is the low score given to 'Help in understanding better your work-related strengths and weaknesses'. This seems something of a contrast to the much higher availability of information about training and learning, and coaching.

Table 3.1 further illustrates the interplay between availability of help and wish for more.

Four forms of help were seen as relatively available but with relatively low requirements for more provision. These were information about jobs and training, role models and within-university contacts. Three forms of help that were seen as somewhat unavailable were not especially wanted. Two of these revolved around having what might be termed an uncritical friend with the other being someone who could bestow a job.

More importantly for practical purposes, three forms of help that were relatively available were nevertheless still wanted to a greater extent. These were coaching in skills/techniques useful in future career, help in contacting people in the discipline but outside the university, and someone to listen.

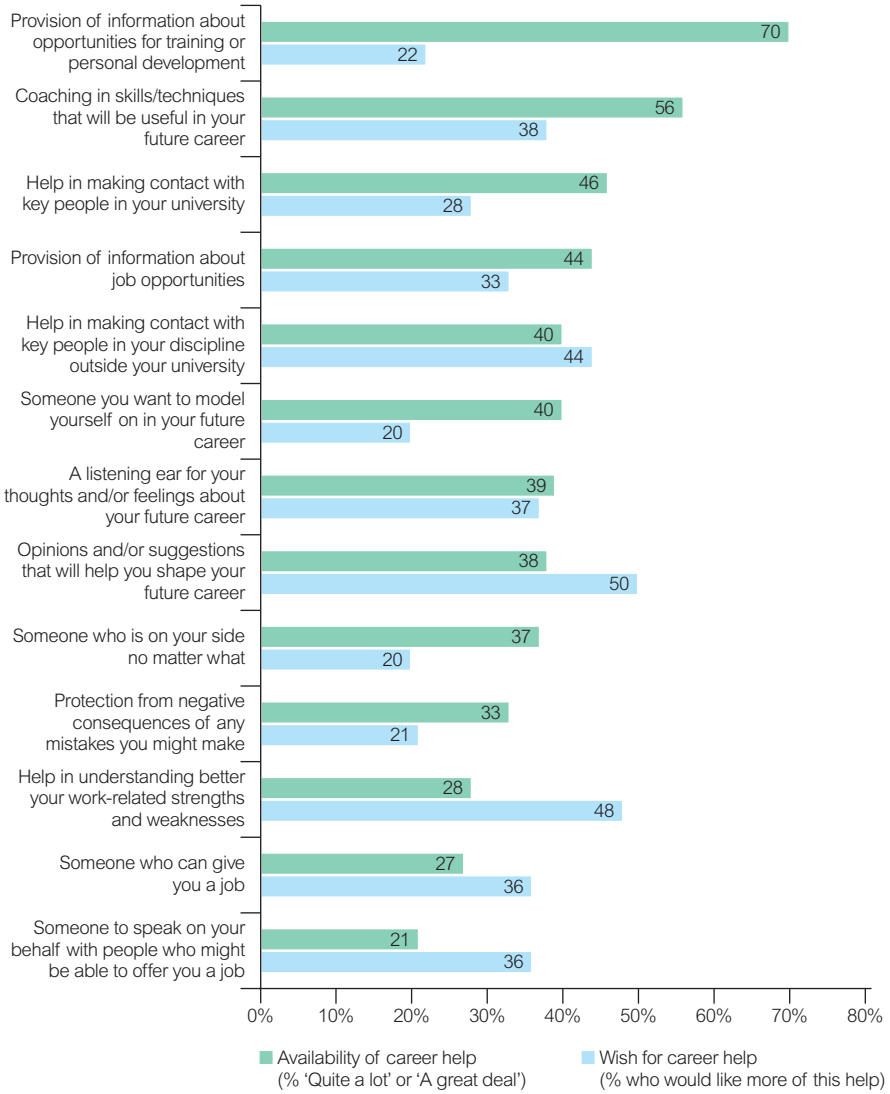

Figure 3.1: The types of career help available to respondents, and what kinds of help were in demand

Notes: Responses were on 4-point scale where 4 = A great deal; 3 = Quite a lot; 2 = A little; 1 = Scarcely at all.
The mean score across all responses was 2.28 ('A little' to 'Quite a lot').
The mean number of types of help respondents said they would like more of was 4.3.

Most significant were the three forms of help that appear in the bottom left hand box of Table 3.1. These were reported to have a below average availability but an above average need for more. This contrast between availability and requirement is most marked for the first two, namely 'Opinions and/or suggestions that will help you shape your future career' and 'Help in understanding better your work-related strengths and weaknesses'. Taken in conjunction with other findings, this indicates that respondents were looking for personalised support in developing their career[21].

[19] Responses were rated on 4-point scale where 4 = A great deal; 3 = Quite a lot; 2 = A little; 1 = Scarcely at all. Mean scores were calculated using this scale

[20] With not all that many jobs around, and institutional policies to meet equal opportunities requirements, it would be surprising if people who could give the respondent a job, or speak on their behalf with someone who might be able to offer a job, were widely available

[21] Still, we must be cautious here. Researchers who did not want this kind of personalised attention may be numerous, and may also have been less inclined to complete our questionnaire than those who did want it

Table 3.1: Cross-tabulation of availability of career help and wish for more help

	Above average wish for more	Below average wish for more
Above average availability	Help in making contact with key people in your discipline outside your university Coaching in skills/techniques that will be useful in your future career A listening ear for your thoughts and/or feelings about your future career	Help in making contact with key people in your university Provision of information about job opportunities Provision of information about opportunities for training or personal development Someone you want to model yourself on in your future career
Below average availability	Opinions and/or suggestions that will help you shape your future career Help in understanding better your work-related strengths and weaknesses Someone to speak on your behalf with people who might be able to offer you a job	Protection from negative consequences of any mistakes you might make Someone who can give you a job Someone who is on your side no matter what

3.1.1 Analysis of help available by respondent subgroups

Few differences between subgroups of respondents were identified. For example, there were no statistically significant differences between men and women, nor between broad subject groups. Respondents with a disability reported significantly less help than those without a disability on just one of the 13 items.

The main trends were:

- Respondents who aspired to a career majoring on research (either within or outside higher education) reported receiving more career help than others (including those aspiring to a university lecturing career)
- Researchers on fixed-term contracts reported more help than those on open-ended contracts with respect to provision of job information and help with understanding strengths and weaknesses
- Younger researchers reported more career help from others than older researchers, with the exception of the very oldest respondents (60+). Those responding to the survey in their 40s and early 50s appeared to receive the least help
- Non-white British respondents consistently reported somewhat less help than other groups (i.e. white British, non-white non-British, and white non-British) but this rarely reached statistical significance[22]
- Researchers in post-1992 universities reported slightly less career help than researchers in other universities. (This does not necessarily mean that provision of these kinds of help is lower in post-1992 universities. It may be due to the higher proportion of respondents in post-1992 universities on open-ended contracts for whom job-seeking is less of a priority).

3.1.2 Analysis of help wanted by respondent subgroups

Career help requirements, as with help available, revealed some notable trends:

- Respondents aspiring to a primarily research career (either in higher education or outside the HE sector) tended to want less help than those aspiring to a university lecturing or other career
- There was an increasing desire for more career help until about the age of 50
- Across the 13 forms of career help surveyed, non-white British respondents wanted help more often than other groups
- Women wanted more help than men. This was particularly true for the kinds of help that facilitate self-understanding and unconditional support
- Researchers at post-1992 universities wanted more help, particularly information on development opportunities and coaching in useful skills and techniques

3.1.3 Who provides career help?

Respondents were asked which people (ten categories) provided each of three broad kinds of help: in finding and applying for jobs, developing professional contacts, and clarifying career goals. Respondents were asked to tick where they received a specific kind of help from a specific category of person. Figure 3.2 shows the percentages of respondents reporting these types of career help from each source.

Three categories of person featured strongly. Family and friends were the most common providers of help in finding and applying for jobs, and in clarifying career goals. The supervisor/PI proved the most frequent provider of help in developing professional contacts, and the second most frequent for finding and applying for jobs and clarifying career goals. Other academic staff in the same department as the researcher also provided help but less frequently than supervisors/PIs.

This emphasis on the people who are commonly most available day to day might be expected. Even so, the data overall suggest under-use of other potential sources. Only one in six respondents reported finding non-academic staff in their university helpful in finding and applying for jobs and/or clarifying career goals. Most other potential sources were used even less. The CROS 2011 report[23] shows that careers advisers, staff developers, and HR specialists have been consulted by only 31%, 11% and 7% of respondents respectively (although this is a significant improvement on the CROS 2009 figures of 12%, 4% and 2% respectively).

[22] This rarely reached statistical significance because of the small number of non-white British respondents (19), but at times the difference between this group and the others was nevertheless substantial. For example, given the 1-4 response scale, it represents an 11% disadvantage for non-white British because their mean score was 44% of the maximum possible, whilst the mean for the white British was 55%. Further, a multivariate analysis across all 13 forms of career help showed a statistically significant difference between the four (admittedly broad) groups, with the non-white British being the lowest of the four.

[23] www.vitae.ac.uk/cros

The most notable trends identified for subgroups of respondents were:

- Younger respondents on fixed-term contracts who aspired to a research career tended to report receiving more help than others (both from the supervisor/PI and in the overall number of categories of people reported as helpers)
- Post-1992 university researchers reported less help in finding and applying for jobs, especially from non-academic staff in their own university[24]

Other weaker trends included:

- Women reporting more help than men from family and friends
- People with a disability reporting more help from two non-academic types of person than those without a disability
- Researchers in medicine and allied subjects reporting slightly less help than researchers in other broad subject areas, whilst those in humanities tended to report slightly more
- Respondents with research Masters degrees or doctorates reported more help from academics outside the UK

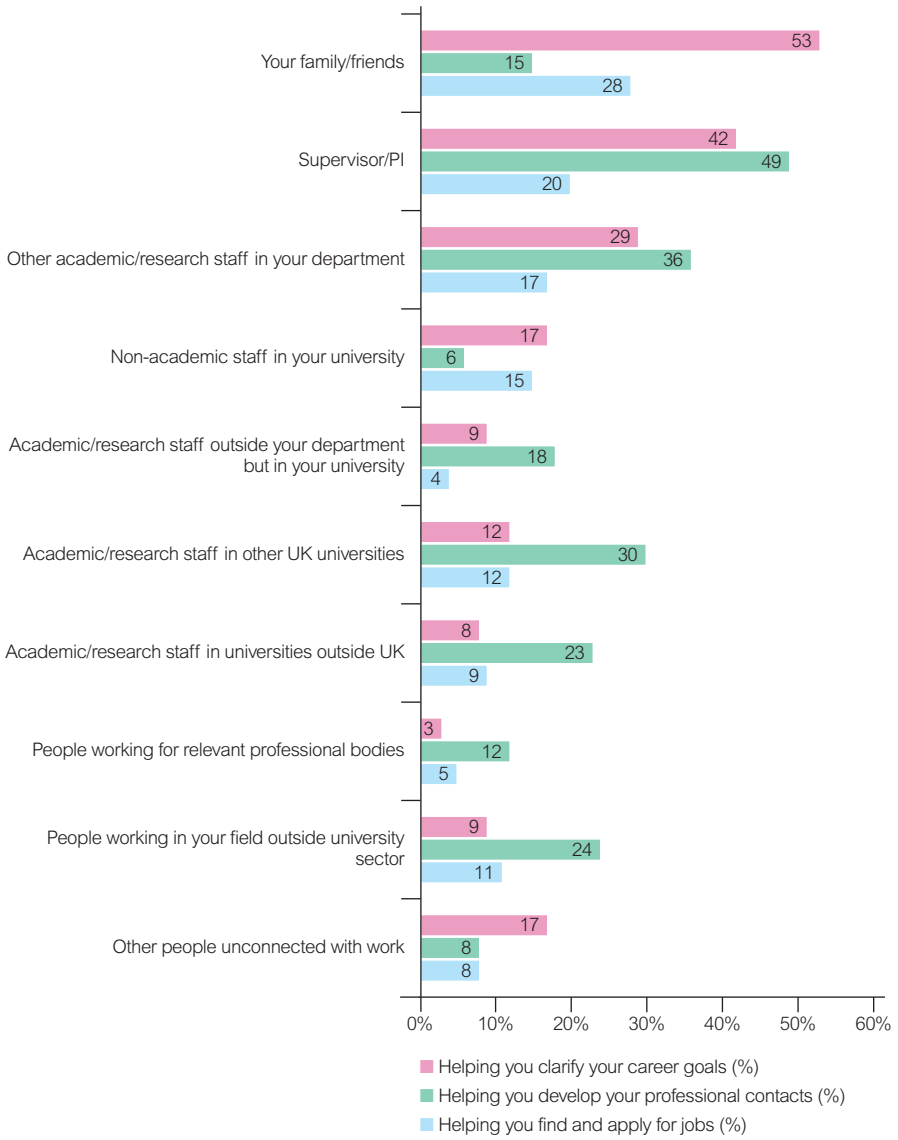

Figure 3.2: Proportion of respondents reporting career help from ten categories of people

3.2 Networking behaviours and reservations

Figure 3.3 shows the prevalence of 14 different networking behaviours. Although it is not easy to specify a benchmark, the levels were generally low enough to suggest that on the whole researchers don't network as much as they could. Perhaps surprisingly, the two purely online forms of social networking were used the least.

Overall, the picture was of networking within a fairly limited set of contacts, with few attempts to become more visible to many of the people with power in the respondent's field:

- The most highly reported networking behaviour was talking to relatively unfamiliar people at conferences. However, other responses suggest that this tended not to include prominent people in the researcher's field
- Respondents seemed relatively willing to ask people for career advice or suggestions. This behaviour was reported almost at the same frequency as socialising with colleagues

Willingness to take on work tasks that increased the respondent's prominence within the current university was only reported slightly more than willingness to take on tasks that would enhance visibility outside the university.

Figure 3.4 sheds some light on why respondents' networking behaviour was not as prevalent as it might have been[25]. The most strongly reported constraint was a perceived lack of time to do it[26]. Questions concerning (i) a lack of self-confidence and (ii) ethical concerns about networking behaviour were also salient for some respondents. The least often endorsed reservation was 'I don't feel I need to'. Overall, then, it seems that reservations about, and barriers to, networking behaviour were significant, though not overwhelming on the whole.

[24] Then again, because the post-1992 universities had the highest proportion of staff on open-ended contracts, perhaps this kind of help was less needed in that type of university than in the other two types.

3.2.1 Differences in networking behaviours

Networking behaviours were analysed by respondent subgroup. The main trends were:

- Respondents on fixed-term as opposed to open-ended contracts tended to engage in more networking behaviour and report fewer objections. Within that group, those with the shortest contract durations tended to be slightly less active. This may be due to lack of opportunity to attend conferences and other events
- Respondents aspiring to a lecturing career tended to do more networking than those aiming for research only or other careers. They also felt more confident than others about doing networking and more convinced of its importance
- Researchers with only an undergraduate degree were slightly less inclined to network than others (perhaps because, for example, they had less opportunity to go to conferences). They also reported more reservations about networking activities, specifically about whether they were ethical. Those with a research Masters did so a little more than those with both higher and lower qualifications
- Across subject areas, respondents in the physical sciences tended to have the most reservations about networking
- Across age groups, respondents in their early 40s reported the fewest objections to networking
- Women, more often than men, reported that lack of self-confidence was a barrier to networking. Women were also more likely to think that they needed to network
- The white British respondents tended to be the least active networkers, with the non-white British sometimes the most active. Non-white British respondents reported the fewest objections to networking[27]

Some of the above findings suggest that reservations about networking related to reported networking behaviour. When each subgroup score was correlated across items in Figure 3.3 and 3.4, correlations were strongest for lack of self-confidence, suggesting that this objection to networking is the one that is most likely to affect behaviour. The behaviours most closely connected with the objections to networking were those concerned with making contact with people outside one's normal day to day work life, especially at conferences.

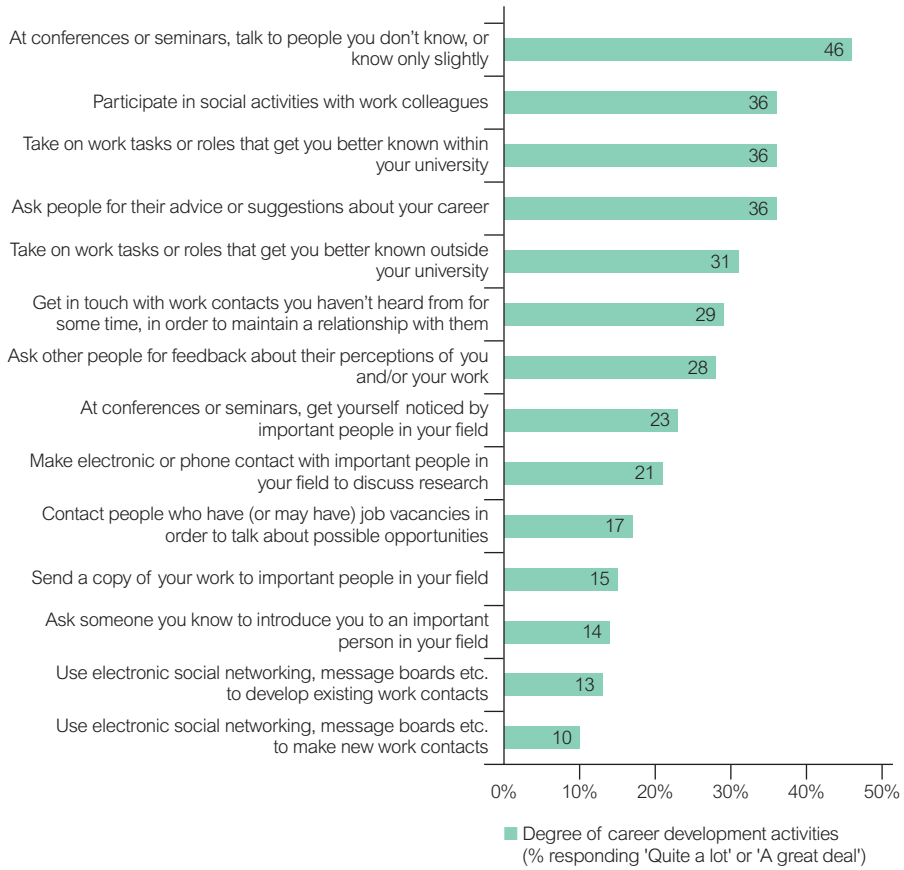

Figure 3.3: The extent of networking and related activities reported by respondents

Notes: Responses on 4-point scale where 4 = A great deal; 3 = Quite a lot; 2 = A little; 1 = Scarcely at all. There were no statistically significant differences between women and men, nor between people with a disability and those without.

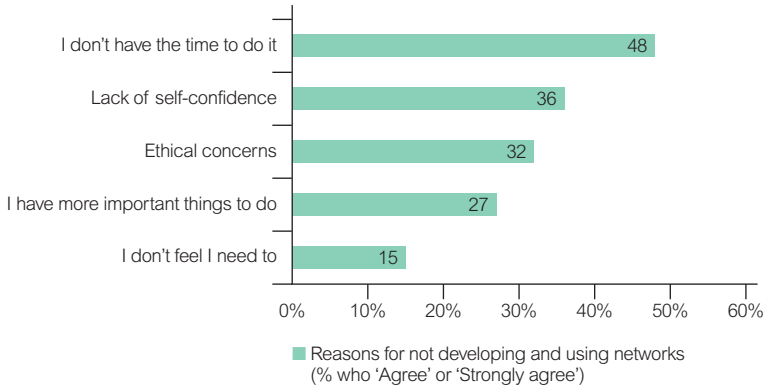

Figure 3.4 Reasons given by respondents for not engaging in networking and related activities

(Note: Responses on 4-point scale where 4 = Strongly Agree; 3 = Agree; 2 = Disagree; 1 = Strongly Disagree)

There were no statistically significant differences between types of university, nor between career aspiration groups.

Lack of self-confidence was the mean result from three options: I don't feel sufficiently self-confident; I don't have the social skills needed for this kind of thing; I don't believe I have much to offer other people.

[25] Although comparing scores between different kinds of questions with different response scales requires caution, it is perhaps significant that the mean score for the nine questions about reasons for not networking (2.26) was quite a bit higher than the mean for the amount of engagement in the 14 networking behaviours (1.93)

[26] Because the mean score for 'I have more important things to do' was considerably lower than for 'I don't have the time to do it', one can surmise that on the whole a perceived shortage of time was a more significant objection than low perceived importance

[27] Although the numbers here were very small and so this trend should be treated with some caution

3.2.2 The characteristics of researchers' networks

Career theory suggests that 'good' networks are those where the person knows a lot of people who tend not to know each other, the people are widely dispersed both in terms of geography and sectors, and that at least some of them are in positions of power or influence.

In contrast to the majority of the above findings, it seems that respondents' networks were not largely confined to local, mmediately available people. Figure 3.5 shows that respondents on the whole reported that they knew a lot of work-related people slightly, that they had contacts in a lot of UK and international locations, and still to quite a great extent, they had work contacts in powerful or influential roles and some contacts outside the university sector.

Less optimistically from the point of view of 'good' networks, they also reported that the people they knew through their work also tended to know each other. The up-side of this is that it might suggest a sense of membership in a research community. Respondents were less likely to say that they knew a lot of work-related people well rather than slightly. However, on the assumption that knowing people better makes it easier to draw on their help when needed (and give it in return), ideally the gap between knowing slightly and knowing well should be narrower.

There were few differences in networks between subgroups of respondents. Among respondents on fixed-term contracts, those on longer-term contracts had more widely geographically distributed networks than those on the short-term contracts. Networks were also more widely distributed in respondents with doctoral qualifications.

CROS 2011[28] results confirm that researchers have wide-ranging networks with 61% reporting collaborations outside the UK while 48% had collaborated with industry, other sectors or other institutions.

Figure 3.5: The characteristics of networks reported by respondents

Note: Responses on 4-point scale where 4 = Strongly Agree; 3 = Agree; 2 = Disagree; 1 = Strongly Disagree

3.3 Researchers' career aspirations, attitudes and constraints

Figure 3.6 shows that the respondents were highly involved in their work with 97% of them agreeing or strongly agreeing that work is an important part of their life. Career satisfaction was reasonably high. Unsurprisingly, the two most preferred future career paths were university research and university lecturing. However, other career paths were all at least fairly attractive to a quarter or a third of respondents. Nearly half the respondents wanted to work outside the UK. Two thirds indicated that their career options were affected by their partner's needs and preferences, and half by their caring responsibilities.

Women were slightly more likely than men to report that work is an important part of their life, but no more likely than men to say that their career plans were affected by their caring responsibilities. However, they were slightly more likely to say that their partner's needs could affect their career. Also, their lower propensity than men to indicate they might do something other than a purely research job, or work outside the UK, suggests that the female respondents' horizons may have been slightly more limited than men's.

On career satisfaction:

- Respondents who did not aspire to research or university lecturing careers felt less satisfied with their career
- Respondents with an open-ended contract tended to be more satisfied with their career than those on a fixed-term contract
- Respondents with doctorates were slightly less satisfied than others
- The youngest and oldest groups of respondents tended to be more satisfied than those in the middle[29]

Regarding career preferences:

- Respondents with doctorates were more likely than less highly qualified researchers to aspire to a university lecturing career
- Respondents in the humanities and social sciences were more likely than other disciplines to aspire to an academic career[30]
- British, especially white British, respondents tended to favour working in the UK, and this also seemed to be associated with a preference for a lecturing career
- Respondents in post-1992 universities were more enthusiastic about staying in university life than those in the other two types of university[31]

[28] www.vitae.ac.uk/CMS/files/upload/CROS2011_Report_Web.pdf

[29] This is consistent with a lot of research in more general working populations. See Clark, A., Oswald, A., & Warr, P. (1996). Is job satisfaction U-shaped in age? Journal of Occupational and Organizational Psychology, 69, 57-81

[30] This may be due to the perceived lack of research opportunities outside universities in the humanities and social sciences

[31] This may be explained by the somewhat higher incidence of open-ended contracts amongst respondents in the post-1992 universities in this study, plus the fact that they have found a niche that is comparatively rare but distinct in that kind of institution

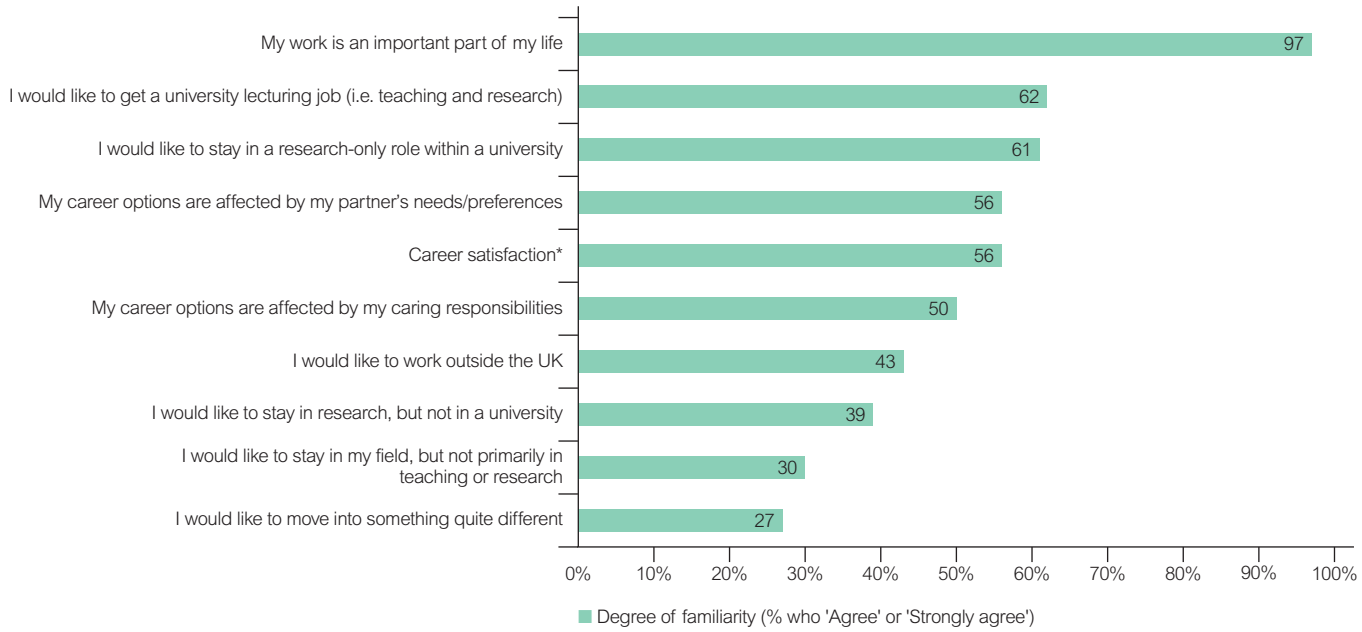

Figure 3.6: The career aspirations, attitudes and constraints reported by respondents[1]

Note: Responses on 4-point scale where 4 = Strongly Agree; 3 = Agree; 2 = Disagree; 1 = Strongly Disagree

*Career satisfaction is the mean score for four questions: Overall I am satisfied with the way my career is going; I am optimistic about my future career; I feel I have been successful in my career so far; My career is delivering the things that matter most to me. The percentage who 'Agree' or 'Strongly Agree' is defined as those who score above 2.5.

3.4 Overall

A series of multiple regression analyses were used to test the power of potential predictors of outcome variables against each other, to identify the most significant findings. The analyses suggest:

- receiving career help from other people helps career satisfaction
- having 'good' networks, and being open to networking, helps to provide career help and career satisfaction
- increasing age seems to lead to decreasing career help but (except near retirement) not a decreasing need for advice. Career satisfaction is relatively low in respondents in their 30s and 40s
- the longer a respondents has been in research, the less career help they perceive that they get, but somewhat paradoxically the better the features of their networks
- british ethnicity is associated with wanting more career help but not with engaging in networking activities
- those who want a university lecturing career were more open to networking than those who want research or other careers
- being in a post-1992 university is associated with receiving less career help than in other types of university[32].
- the findings were reasonably robust across (for example) different discipline areas, (dis)ability groups, national or ethnic affiliation, and gender[33].

[32] However, there may be good reasons for that, because a higher proportion of post-1992 respondents were on open-ended contracts. A supplementary analysis supported this because when type of contract (fixed-term vs open-ended) was statistically controlled, the differences between types of university in career help available (just) became statistically non-significant.

[33] The most salient predictors appear to concern time both past (length of tenure and age) and future (career aspiration).

4 Findings from the interviews

The data from interviews were analysed with some consideration of the quantitative data. The following points were of particular interest:

- Whether the interviews would enable a better understanding of any themes evident in the questionnaire findings
- Whether any further consistent themes would emerge[34]

4.1 Views of researcher developers in HR, careers services and senior academic roles

Interviews with HR, careers staff and other researcher developers often included references to how difficult (and perhaps dangerous) it is to generalise. Yet this did not mean they had no tools at their disposal for distinguishing between different researcher career orientations.

Five general themes below seemed most prominent in researcher developers' descriptions of researchers.

4.1.1 Researchers' approach to their career

Managers identified a spectrum, positioning those utterly focused on an academic research career at one end, and at the other, those who only think about their career when the 'academic conveyor belt' ceases to run smoothly.

"I would say there's such a variety of approach. At one end of the scale you have people who genuinely have not made any decisions in their careers. Their academic excellence and the opportunities that have been put in front of them have done the deciding for them. All they've had to do is say yes... so if they then come to a point where they feel they need to start making some decisions or being a bit more proactive, some are a little bit reluctant... Others are very, very focused. They know that they want a research career, they've got an excellent PI, they've got an excellent group they're working with... they know exactly that it's this publication they need to be doing…"

Some researchers were seen maintaining a broader outlook:

"[There are those who have] made a real decision to be a researcher when they could have done umpteen other things, so their career approach is much wider. So 'Yeah, I'm enjoying research. I'll do it like this. I'll find out how the best way is, but I might change my mind in a few years. I know I've got loads of skills.'"

The predominant view was that leaving it too late was more common than not:

"They usually get towards the end of their contract and suddenly think 'Oh, maybe I won't make it in academia,' or 'Maybe I need to think about something else' and then it's very late…"

For some, this was the moment when a lack of planning really bites. There was also some suggestion that researchers who were looking for an alternative career are the ones researcher developers were most likely to see:

"Of course, you know, probably 80% of the early stage researchers still are focused on academic careers... many people don't realise that there is a problem ... they want advice on how to get that elusive permanent academic job…"

"A lot of people we see for one-to-one guidance are the ones who are considering a change… So they're not necessarily thinking of us as their first point of contact for progression in an academic career..."

4.1.2 Researchers' networking ability

The overall trend was perceived to be that researchers lacked confidence and skills in networking.

"I think a common thing with researchers generally, and not just about networking, is they're very low on self-esteem and confidence because this is a competitive world research."

Also, to the extent that they did network, researchers often restricted themselves to people close to them:

"...they'll say they're looking for an academic career, 'So have you spoken to the lecturers in your department?' and they'll say no. You think 'Well, you know, these are clear sources of information and advice to you' and they haven't done that because they don't feel confident approaching people who are part of the wider school or department."

Reservations about networking were more evident in the qualitative than the quantitative data (see also researchers' comments below).

4.1.3 The role of the PI and other close associates in researchers' career development

Researcher developers' comments were compatible with the questionnaire findings. Most researcher developers saw the PI as being the person researchers rely on most for career help, especially if they planned to stay in research.

"I think the more that somebody wants an academic career, the more likely they are to rely on their principal investigator."

Some of the researcher developers saw a bright future for the role of the PI as a career developer of researchers:

"Our new staff coming into post have been PhD students during the Roberts era and so they're more highly skilled in these transferable skills and they have higher expectations that that sort of skill development will continue. So I'm an eternal optimist that this'll work its way through into the situation when the current research staff become PIs and we will have achieved culture change from the bottom-up."

All researcher developers agreed that a significant proportion of researchers were never in touch with them.

"I think I can only talk about the researchers that we do see... because there's a big proportion of researchers that we don't see... I can only assume that those people are so into their research that they don't feel it's necessary, or see that we are relevant to them, or perhaps they have a bit more security within their department."

[34] We cannot and do not claim that our interviewees (or indeed our questionnaire sample) are necessarily representative of the wider population of researchers. Nor do we claim that what follows is a complete analysis of all potentially informative aspects of the interview data

4.2 Themes from the researcher interviews

4.2.1 Role of the PI in providing career help

Some researchers were very positive about their current or previous PI's support:

"I have to say I'm really lucky because my boss is really fabulous and she's very, very supportive with all of my personal development stuff…"

"From day one he mentored me very well…. And he taught me never to be afraid to actually share all the time."

However, others reported PIs having other priorities and agendas:

"I guess my line manager here does say from time to time like 'You should think about this,' or 'This is good for your career,' but then I wonder sometimes if that's not biased because she wants me to stay here and she wants my career progression to go in a certain way."

"I developed huge skills over those years, but I think I was too valuable for him in my position because I was his right-hand person. I used to write book chapters for him and because he mentored me he got me to think in the way he did, so whenever he didn't have time, I would do it."

"I think it's good to have another outside mentor because I think your direct PI will be concerned mainly about the work and what sort of work you'll be generating..."

Other reasons given for the PI not being especially helpful as a career helper included a lack of interpersonal 'chemistry', and (more often) a sense that the PI was out of touch with the current career opportunities and constraints for researchers:

"The career trajectory that my immediate line manager... and the career trajectory of the Director, the guys who are management, is not the career trajectory I want to go to and that's the reason that I won't seek advice from them. And plus the questions I ask and the opportunities that I would like to capitalise on, they just wouldn't have a clue."

The overall tone of the interview comments suggests that the importance of the PI as a provider of career help (Figure 3.2) was perhaps more to do with their availability and proximity than their skills as a career developer.

Another perception evident in some interviews was that the PI was the person who could make or break your career. This led in some cases to a proactive response to go out and find a good PI, and in others a kind of resigned dependence:

"... now that we've got funding for the next two years I'm already thinking about where can I potentially get funding for subsequent years. So it might be within [current field] or [other somewhat related fields]. I mean I've managed to link up with a [senior researcher] who... [is] quite good at spotting people and wanting people to develop, challenging you to do lots of things."

"Your career progression is very much dependent on your PI... If you don't get on with them, then you're stuffed and you know you're not going to get developed."

4.2.2 Other sources of career help

Previous supervisor

Where the PI wasn't the prime provider of career help it was not unusual for the researcher's doctoral supervisor or other past supervisors to have a continuing role:

"Probably my PhD supervisor, for a variety of reasons because he's been the most supportive throughout... he's also introduced me to a much wider network of people."

"... probably my main PhD supervisor who's, you know, helped me develop this theoretical work that I've been doing... But I mean the reason that that's most important is that other people are really interested in it and not because he was particularly helpful compared to other people."

The latter quote serves as a reminder that how effective a person is in providing career help is not solely a product of his or her own attributes. It may so happen that their positioning in terms of their field of work is propitious.

Research colleagues

Research colleagues could also be a source of good career help, often through the pooling of resources and information, and sometimes through a sense of group solidarity in adversity:

"Certainly the best help I get here is in a kind of support network of a bunch of kind of senior post-docs, all of whom recognise that there's no help from [anywhere] else, so we help each other out just informally and that works. Well, it works in terms of us feeling better about it all at least."

"My fellow colleagues as well have been particularly useful ...you develop relationships or close networks with people and you help each other in terms of sharing information about what's happening"

Mentor

Some researchers saw a role for a mentor who was separate from their line management structure. This supports initiatives that have been, or are being, set up in many universities.

"When I was going through this process a couple of years after finishing the PhD I sort of said 'Listen, can we go for a cup of coffee and talk about stuff?' So he had some good sort of general career advice which, you know, are things that I sort of keep in mind as different opportunities arise."

"So while I've got people internally and my boss may be backing me a little bit in helping me to develop, having a mentor or somebody who's been through the process would be helpful."

"So what you tend to find in terms of career development is the people that have gone on and gone furthest in their career in my research centre are the people that firstly are very ambitious, but secondly have actively befriended key powerful people in the centre and become their friends and then been mentored by them over a long period of time."

"Those who do have a mentor find it very useful, very rewarding and it can help them into networks." (researcher developer)

These quotes illustrate the subtly different roles mentors can play: quiet off-the-record adviser, an experienced wise counsel, a powerful advocate of the mentee, and a source of new contacts, among other things.

Family and friends

There was plenty of evidence that friends and family acted as important sources of career help. In the academic literature on careers, friends and family are normally considered to be rather detached from the career realm, and therefore often not a very well-informed source of help. In this case, however, it was clear that friends and family were often also in (or at least familiar with) academia. Indeed, the distinction between friends and colleagues was sometimes unclear. This helps to contextualise the quantitative findings about the relative prominence of family and friends as career helpers, which might have been taken to mean that some researchers were making poor choices of sources of help:

"I think I've got a lot of quite useful contextual information from knowing other people socially who are academics. I mean I had a lot of friends who were in academic jobs before I became an academic."

"Well, one of my best friends,...she did my degree with me and now I see her socially loads... and then my old house mate, who I knew socially as well... She did do a PhD and is working as a research associate as well. So we're all in the same boat and it's quite nice because you can freely talk about it and the issues and the problems... "

Nevertheless, it was not always necessary for friends and family to be insiders in order to be helpful. Some researchers felt that accumulated experience in other sectors, plus a deep concern for the respondent, meant that they could be in a position to help:

"I think my [partner] is massively important. Especially when I was doing my PhD he was a huge source of support. I don't think my parents understand my career."

4.2.3 Services provided centrally by HR, careers and research offices

These findings echoed of some of the trends in the quantitative data, most notably a desire for more personalised help, and a low uptake of help from central services. A dominant theme was that there probably was help available from central services, but it was not close enough to the respondent's daily life to be salient.

"You're saying have I gone to careers. I haven't been to anyone. ... It sounds terrible because I'm a researcher and I should be able to find out those things, but I think you get channelled into the work you're doing... and so something beyond that... I mean most people don't do professional development."

"Here, the university is all centralised, so HR is on another campus... You can still email people, but yeah, there are things you don't want to email about, you just want to sit down and talk about it."

A similar theme amongst some researchers was that help was either not available (though sometimes they were factually wrong about that) or that it was ill-suited to their needs. The first quote below touches on a finding from the quantitative data, that researchers beyond early career tended to experience less help than their younger colleagues.

"You know, you see things sometimes for early career researchers and it's all aimed at people who've just done a PhD and then, you know, building their career... there's nothing really that's aimed at people that have got 8 years work experience as a researcher, but [are asking] 'Now what?'."

"I mean I think they have got a careers centre, but I don't think it's open to staff. I don't know, but I'm pretty sure that it's just for students."

However, more positive experiences were reported by several researchers who actively sought out help.

"When the university kind of created the post here, a permanent post, and I was applying for that, I got a huge amount of help from the career service here. I mean it had been a while since I'd written a job application or done any of those things and really what I needed from them was kind of support in terms of what was required of somebody who wanted to kind of stay within an academic institution and focus on their research career and they gave me a lot of help and support and I have tried to encourage other researchers to take advantage of the careers service here in terms of both kind of emotional support I suppose because it can be a kind of draining process to have to apply for so many jobs, but also kind of really practical things."

4.2.4 Personal responsibility for career development

There was a general perception by researchers that essentially they alone were responsible for their own career development and that other people could not be expected to manage their career.

"It's all really basically up to me and my direction. My sort of direct supervisor's very supportive and also very busy, so I think she leaves it basically up to me to find out what the best route is."

"I think it's one of those things that you direct yourself. If you want something you get it yourself if it's possible."

"It's really down to the researcher themselves to do what they want to do. I don't think there are many people (mentors, bosses) that are really looking out for researchers' interests."

"There's colleagues and friends as well as bosses, but really, you know, if I had to say one person – it's probably me. You know, I'm the person that's gone out there and found this funding."

The frequency of comments like these may relate therefore to the moderately reported amounts of help provided by most sources.

4.3 Networking

4.3.1 Confident networkers

Some interviewees expressed confidence about networking, recognising the process as a natural part of a self-managed career. They mentioned elements of planning, purpose, mutuality, and skills in encouraging other people to feel at ease.

"I don't have any problem asking people for their advice in a way that makes them feel flattered and useful... or at least that's what I aim for. And I think I'm very good at knowing what the outcome is that I want before I ask a particular question of someone. If I'm going to ask all these people to help me, I'm going to make sure that I'm asking them for something that is going to be worthwhile for me and also a good use of their time."

"...if I find someone who's working on something that I think is an interesting area or an area I want to move into, I'll go and talk to them and I'll suggest 'Let's meet up and discuss maybe something,' and that's happened."

For confident networkers, and also some less confident ones, the use of electronically-mediated networking was often part of the process. This was more evident in the interviews than in the questionnaire responses. It ranged from purposeful use of tools for professional and personal communication to perhaps slightly cautious use of email to make an initial approach. This latter tactic was sometimes portrayed by interviewees as playing to an academic's strengths, because it offered the chance to craft a carefully worded message, and gave the recipient time to 'review' it.

"I went to a course here... how to network effectively, so I'm starting to do things like that. I'm using Facebook in that sort of way rather than for truly personal things... I've started things like LinkedIn because before it was just taking people's emails and then never contacting them."

"Well, I don't hesitate contacting people by email for instance before a conference and saying 'I look forward to meeting you'."

"I keep in touch through Skype with more or less everyone I've ever worked with closely."

"I've got a web page. It's an academic web page, but it's not specifically tied to the university... and I think it really has made a difference in terms of I can tell that people are able to find me much more easily than via the university website."

4.3.2 Reservations about networking

However, in line with the questionnaire findings, a high degree of comfort with networking seemed to be the exception. Lack of confidence was a fairly common reservation:

"Socially I'm not that confident. In the little group that goes to the pub I'm, you know, very confident and it's a useful little network, but in things like going into a conference I'm not that good at working the room."

"I guess I'm not very good at kind of self-promotion and saying, you know, 'Hey, look how great I am!' which is maybe because after years as a post-doc you kind of lose confidence in yourself, but also I've never really been like that."

In what looked like a manifestation of the self-confidence issue, some interviewees construed networking as talking about work with senior people in a way that demonstrated great knowledge and talent:

"...when you're in a conference with a lot of senior people with big brains, you know, you could spend an hour trying to explain what your research is about and they understand you straight-away and they already know more than you do... "

"The professors are too busy and meet too many people to particularly be interested in what you've got to say unless you've got something particularly relevant to say to them and it's demeaning and it's hard work and it's quite embarrassing really."

Furthermore, for some researchers there was a sense that networking means simulated rather than real relationships with others. There was some discomfort about this, and it seemed to stem partly from the confidence issue but also partly from an ethical standpoint:

"...unless some particular senior person has a very specific connection with my work... it's that difference between talking to someone because you should be and talking to someone because you're genuinely connecting with them and I'm much more comfortable with the latter... partly because I feel uncomfortable when it feels false."

"You know, I'm quite happy to do sort of like supportive, facilitative work for events and things, but when it comes to thinking about actually consciously [tootling] around and doing small talk and then trying to integrate business opportunities or development opportunities, I find that quite uneasy..."

It may be that some researchers understand the nature of networking in a highly restrictive way, and see it purely as an exploitative and forced activity rather than a collaborative and naturally occurring one.

The interviews provided some evidence that training and/or willpower could at least partly overcome the confidence issue.

"I think it's taken me a number of years of watching other people networking to realise that it's all right to sort of go up to people and introduce yourself. I'm actually quite shy, believe it or not, but the professional development courses that I've done and the one on networking and... I've realised that [networking] is something you have to do if you want to be a researcher."

Note that the questionnaire and the interviews gave a somewhat different picture of why researchers engage in networking only in a limited way. The questionnaire responses suggest that a perceived lack of time is the primary barrier, whereas this got few mentions in the interviews.

5 Conclusions and recommendations

We have summarised what we saw as the main findings from the questionnaire and the interviews before offering further comments to help to explain the meaning of the findings. Then we make recommendations directed at each of three constituencies: researchers, principal investigators, and staff involved in researchers' career development

5.1 Summary of findings from the questionnaire

1. Most respondents felt that opportunities for training were plentiful and clearly signposted. However they wanted more personalised career help, for example to be listened to and also to better understand their personal strengths and weaknesses as well as career opportunities. Some would also appreciate an advocate who could promote them to influential people
2. Although respondents reported fairly high availability of coaching in skills/techniques that would be useful in their future career, many still wanted more. The same was true for help in making contact with key people in their discipline outside their university
3. Several demographic characteristics of researchers were associated with the amount of career help they reported receiving from other people. Specifically, less help was experienced by researchers who wanted a future career outside pure research (even lecturing), who were between their mid-30s and mid-50s, and who were British ethnic minority. By and large these same characteristics were also associated with wanting more help
4. Family and friends were the most frequently mentioned source of help in clarifying career goals. This was the only one of ten sources across three types of career help where more than half the respondents (53%) indicated that they received help. The supervisor/PI was second (42% of respondents) for help in clarifying career goals, and first (49%) for help with developing professional contacts. When it came to help with finding and applying for jobs, family/friends came first (28% of respondents) and supervisor/PI second (20%). Other academic/research staff in the respondent's department were either the second or the third most common providers for all three types of help, though never for >36% of respondents
5. Most other potential sources of career help were much less frequently mentioned. These included academics and others outside the researcher's own university as well as non-academic staff (such as careers advisers and HR staff) in their own university. Non-academic staff were reported as providing help with finding and applying for jobs by 15% of respondents, a ranking of fourth out of nine sources of career help. Help with developing professional contacts was reported by 6% (eighth out of nine sources of career help), and help with clarifying career goals reported by 17% (a ranking of fourth out of nine)
6. Networking activities (out of a list of 14) were engaged in 'Quite a lot' or 'A great deal' by up to half (46%) of the respondents. Researchers seemed particularly reluctant to try to engage with prominent people in their field, and to use social networking media such as Facebook and LinkedIn. Talking with people (except those perceived to be extremely important) was the most frequently reported networking behaviour with 46% responding at least 'Quite a lot'. Asking people for career advice or suggestions was second (36%), along with participating in social activities with colleagues
7. Most respondents recognised that they needed to network. Their reluctance appeared to stem primarily from feelings of lack of time to do it. Lack of self-confidence and worry about the falseness of networking relationships also played a part. Respondents in the physical sciences tended to have the most reservations about networking
8. Respondents who aspired primarily to a university lecturing career reported most networking behaviour and also the fewest reservations about doing networking. British ethnic minority respondents and those on fixed-term (as opposed to open-ended) contracts showed a similar pattern. White British respondents tended to be the least active networkers
9. Many researchers reported that they were acquainted with quite a lot of people. Furthermore, these people were often quite widely dispersed both geographically and between employment sectors and were in positions of importance. Having a large and dispersed network was associated with greater availability of career help from others, and with career satisfaction (see also 11 below)
10. Most respondents were highly involved in their work. Whilst the majority were most interested in a university research and/or lecturing career, a substantial minority were equally or more interested in other career possibilities. Researchers in humanities and social/business studies were less keen than others on a future career outside university research/lecturing
11. Career satisfaction was moderately high overall, though somewhat less so on average for researchers in their 30s and 40s, and for those who aspired to careers other than university research or lecturing. Respondents who reported more career help from others tended also to be more satisfied with their careers. The same was true of researchers who felt comfortable with networking, and who were on an open-ended (as opposed to fixed-term) contract
12. Although some differences between subgroups of researchers have been reported above, on the whole the findings held up quite well across different groups. The most prevalent differences were between respondents of different ages, and with different career aspirations

5.2 Summary of findings from the interviews

1. The HR, careers and researcher developers shared a view that researchers could be more active in planning their career and harnessing the formally organised help available, as well as developing and using networks. However, they also acknowledged that it is difficult to generalise
2. There was recognition amongst both researcher developers and researchers that the principal investigator was a key influencer in the researcher's career. The extent to which they were committed to developing researchers (and not just getting the current project completed) and their skill and current knowledge in providing career help were important, but sometimes variable, factors. For some, the prominence of the PI as a career helper, evident in the questionnaire findings, seemed to be more related to the PI's availability rather than their expertise as a career helper
3. On the one hand, there was a tendency amongst some researchers to feel that they were essentially on their own when it came to managing their career. On the other hand, there was also a reluctance to engage wholeheartedly in networking activities that might overcome this isolation
4. Reluctance to networking was based partly on a lack of confidence (especially regarding talking to senior people about work) and partly on a distaste for the perceived artificiality. Unlike in the quantitative data, the interviews did not suggest that lack of time was a pervasive impediment to networking
5. The relative prominence of family and friends as career helpers (see Figure 3.2) was partly explained by the frequency with which they were also in, or at least familiar with, academia. It reinforced the impression that the social contacts used by most researchers were those who were already close to them
6. Many researchers were vague about what help could be available from the HR, careers and research offices in their institution. Those who had sought it out had however found it useful
7. Career help from an experienced mentor separate from line management was seen positively by some researchers. This is of course not a new idea but its endorsement here is significant, not least because it meets the need for a personal 'close to me' helper. Some researchers felt that the only reliable form of support available was via their peers

5.3 Comments on the findings

On the whole the findings from both questionnaire and interviews supported the more pessimistic of the two 'common-sense' views of researchers' approach to career management outlined in the introduction to this report. Despite apparently often having quite numerous and widely dispersed contacts, respondents tended to be highly reliant for career help on the people they come across day to day. They were somewhat reluctant and hesitant networkers, especially when it came to making themselves visible to prominent people.

Researchers' very high involvement with their job (as evidenced in the questionnaire responses) may be one reason for this. Researchers are likely to be under a lot of pressure in their jobs, particularly in delivering for research funding bids and achieving strong publications. They, and indeed their PI, may be so wrapped up in their current project that a focus on future career planning is often postponed. CROS 2011[35] reported that while 82% of respondents agreed that they had reflected on their development needs, almost half (47%) did not have a clear career development plan and only 20% had undertaken career management training. Researchers may also place a high premium on being autonomous. After all, researchers often work fairly independently, and many aspects of research are asocial activities. All this might predispose researchers to think that careers are determined in a rational and autonomous manner. So asking people for help might be seen as a sign of weakness, and networking as an underhand way of getting jobs that on objective criteria you should not get. We are exaggerating somewhat here for effect, but even if this caricature is only 10% valid, it could well have an effect on researchers' career management behaviour.

The labour market in which researchers operate is unpredictable, and it is not usually possible to specify a year or two in advance exactly what one might like to do next. One reaction to that might be to network furiously so that one is the first to hear of opportunities that come up at unpredictable moments. Another, which seems to be more widely adopted, is to give up trying to anticipate the unanticipatable, and start taking action only when the future is imminent.

Van Rijnsoever and colleagues[36] found that networking with local faculty and with researchers from other universities facilitates career progress. For researchers from overseas, the development of social contacts both in the UK and "back home" has been reported as significant for their careers and identities[37]. However, some research highlights that reluctance to network has negative consequences with difficulty in making contacts cited as a limiting factor in early researcher careers[38]. This study indicates that there was certainly potential for more proactive networking and seeking out career help from a wider range of people with many researchers having contacts they could nurture further.

Many respondents felt that they have to take sole responsibility for their career development and were active and skilful in using social networking media. However, our data suggest many researchers would like more personalised help with their careers. Significant numbers wanted 'A listening ear for your thoughts and/or feelings about your future career'; 'Opinions and/or suggestions that will help you shape your future career'; and 'Help in understanding better your work-related strengths and weaknesses'. Another, more subtle, indicator of this need is that the second most commonly reported networking behaviour was asking people for opinions or suggestions about the researcher's career.

[35] www.vitae.ac.uk/CMS/files/upload/CROS2011_Report_Web.pdf

[36] Van Rijnsoever, F. J., Hessels, L. K., & Vandenburg, R. L. J. (2008). A resource-based view on the interactions of university researchers. Research Policy, 37, 1255-1266.

[37] Cohen, L., M.N. Ravishankar and Duberley, J. (2010). Careers and Diasporic Identities: A Study of Indian Research Scientists. In: The 70th Annual Meeting of the Academy of Management, Montreal, Canada.

[38] Carroll, J. K. et al. (2010). Enhancing international collaboration among early career researchers. Patient Education and Counselling, 80, 417-420.

So what might encourage researchers to be more active in the social side of career management?

- Challenging researchers' perception that networking always has to be intense work-related discussions with high-powered people to whom the researcher may feel they have little to offer
- Encouraging researchers to seek out help from people they trust so that they do not believe they are entirely on their own for example peers and mentors. (Note this is not the same as encouraging researchers to avoid taking responsibility for their career)
- Assisting researchers to understand that career help from other people, a positive approach to networking and a large, well-spread network can all contribute to career satisfaction and have tangible career benefits

5.4 Recommendations[39]

5.4.1 Recommendations for staff in higher education institutions developing researchers' careers

1. Continue publicising and running training courses and other specialised events for researchers. They are valued by those who take advantage of these opportunities
2. Offer skilled one-to-one (or one to a very small number) opportunities for researchers (to the extent that resources allow), to discuss individual career concerns and offer potential solutions/opportunities
3. Be aware of researchers in their mid-30s to early 50s, those who might wish to move out of higher education research in the future, and those who are British ethnic minority who may require more help
4. Recognising (i) that researchers are likely to continue using the people closest to them for career help, and (ii) those people may not always want to spend their time providing help or being trained to do it, consider offering researchers training in how to get the best help possible from those around them
5. Recognising that researchers tend to seek local help, consider ways of making what you offer more local, such as a 'career champion' for researchers in each school/department who is well-known to the researchers. A champion might offer some basic forms of help and/or be a conduit to centrally-organised services, putting researchers in touch with the right people
6. Work with PIs to ensure that they have the information and skills required to offer career help. A framework for structuring the training of PIs (and others) to be career helpers is provided by Bosley, Arnold, and Cohen[40], outlining what it takes to be a credible career helper
7. Mentoring should be used to help researchers broaden their horizons. Running mentoring schemes where the mentor is not involved in managing the researcher is likely to be valuable for researchers, and indeed for mentors. It is however important to invest in training for mentors and mentees and to have clear goals for the mentoring scheme, whilst also allowing a degree of freedom due to the voluntary nature of the scheme. Mentors could be from another institution, or outside the higher education sector. Where universities are geographically close, it might be possible to have mentors from one and mentees from the other, in a reciprocal arrangement
8. It might also be helpful to consider setting up of pairs or small groups of researchers and training them in the necessary skills (listening etc.) to be helpful mentors, coaches, knowledge-sharers or co-counsellors or to form action learning sets
9. Continue with (and perhaps expand and/or emphasise) training and guidance for researchers on networking for career development. Training and guidance on networking should address the following points:
   - what the researcher can offer others
   - how to forge real relationships, not exploitative false ones or purely self-advertisement
   - how to connect with people e.g. through common interests that are not necessarily work-based
   - how to identify people who are not yet top of their field (because the top people can be very daunting to approach). These 'up and coming' people may be in a position to offer helpful insights, as well as having some power or influence, and possibly more in the future
   - how to make, and then make the best of, new friends in collaborative and mutually helpful relationships. It should also focus on how to develop relationships with existing contacts that have been made in the natural course of the researcher's day to day work
10. Put a strong emphasis on training for researchers to get themselves known in relatively 'quick and easy' ways e.g. using social networking media, developing and maintaining a web presence, academic positioning or dissemination of their work

5.4.2 Recommendations for PIs

1. Recognise that researchers on your projects will tend to look to you for career help. The kinds of career help that researchers would most value more of include:
   - discussing their strengths and weaknesses
   - helping them make contact with key people in the discipline outside your institution
   - coaching in skills/techniques that will be useful in their future career
   - providing a listening ear for their thoughts and/or feelings about their future career
   - offering opinions and/or suggestions that will help them shape their future career
   - where possible, acting as their advocate when in contact with colleagues, particularly concerning job opportunities
2. Your researchers are likely to understand, and indeed agree with, giving project completion priority over broader career development. So the career help you give them does not have to be time-consuming or in huge depth. It should however be carefully considered, because it is likely that your researchers will take what you say very seriously

[39] Caveats: Some of the recommendations have been suggested before. Some of the recommendations are already implemented in some universities. In some cases implementation difficulties may outweigh the potential benefits and it would be difficult, if not impossible, to implement all the recommendations. Note: It has been suggested that in career development it is much better to do a few things thoroughly than many things sketchily (Hirsh, W. and Jackson, C. (2004) Managing Careers in Large Organisations, London: The Work Foundation)

[40] Bosley, S. Arnold, J., and Cohen, L. (2007). The anatomy of credibility: A conceptual framework of valued career helper attributes. Journal of Vocational Behavior, 70, 116-134.

3. Be prepared. Try to be clear in your mind about the current status of the labour market, career landscape and skill/knowledge requirements so that you can support your researchers with relevant information. You probably do not consider yourself a careers expert, nor should you be expected to be one. Therefore, take a bit of time to find out who in your institution is responsible for looking after the development of researchers. There is probably more than one person with differing responsibilities. You will then have an easy and well-targeted referral system ready for career issues that are beyond your expertise and/or interest
4. Try to be helpful in the career development of all your researchers. Research evidence indicates that older researchers, those who might want a career outside academia, and those who are British ethnic minorities can experience rather less career help than others
5. Where appropriate, put your researchers in touch with your contacts outside your institution. Use knowledge of your contacts' interests and personalities to help your researchers approach them in an appropriate way. If you have examples from your own career of how you have benefited from a network of contacts outside your immediate day to day work context, share these with your researchers
6. Encourage your researchers to bring themselves and their work to the attention of others and do what you can to boost your researchers' confidence in themselves, their own work, and their value to others. This may increase their effective networking capabilities

5.4.3 Recommendations for researchers

1. The amount and type of career help you receive from other people really does make a difference to your career. Make sure that you get the best out of the career help that is available
2. The kinds of career help that many researchers want more of include the following examples. You will find it helpful to consider which you would most value.
   - Discussions about your strengths and weaknesses
   - Helping you make contact with key people in the discipline outside your institution
   - Coaching in skills/techniques that will be useful in your future career
   - A listening ear for your thoughts and/or feelings about future career
   - Opinions and/or suggestions that will help you shape your future career
   - People to speak positively about you when in contact with colleagues who might at some time have a job for you
3. Your institution almost certainly has staff whose job it is to aid your career development, in research administration, careers centre or human resources functions. They offer a wide range of opportunities (not just courses), so take the time to find out who they are and what they can offer. Their awareness of the labour market and career opportunities is likely to be broader than yours, so tap into it
4. Everyone understands that for most researchers the pressure is on to complete their project, and that this makes it hard to find the time for looking after career development. But that doesn't mean you can leave your career development to the last moment and/or chance. What it does mean is that it needs to be done in an astute, time-efficient way
5. Many researchers have a range of contacts in different locations and types of work. However, for career help they tend to use mainly people they meet in their day to day work. Evidence shows that those who have strong networks and are prepared to use them reap career benefits. Consider how your further-flung contacts might be able to provide the kinds of career help mentioned above. Consider what you have to offer to others, in terms of your work and also other knowledge, skills and interests you may have. If you are not sure about this, talk it over with others who know you, and create a list of what you have to offer. In order to create genuine relationships look for points of common interest within or even outside work. People's websites and CVs often provide valuable clues
6. Do not be afraid to send brief information about your work, and official output from it, to a range of people in your field (subject to your contractual conditions and informal agreements with your PI, of course). As well as raising your profile in their minds, it may be genuinely helpful to them
7. Consider creating your own personal web and social networking presence (such as LinkedIn), and an email address, independent of your current employer. Then if/when you change employer, it will still be easy for people to find you
8. Many researchers find it very helpful to have a mentor, particularly someone outside your line management (and probably outside your department/school as well) who works with you to develop yourself and your career. Your institution may well have a formal scheme for this, but if not, the staff responsible for your development may still be able to help you set something up. You could also establish your own mentoring relationship. Be as clear as you can about what form(s) of career help you would most like from your mentor
9. Consider setting up your own peer-support groups, action learning sets and/or peer mentoring with researcher colleagues. This can provide useful information, feedback, and social support. This might only need a couple of hours a month
10. Your PI may be a very effective career helper so ask for any of the kinds of career help listed in point 2 above that seem useful. They may well have a range of contacts that could be useful to you, and be willing to help you get in touch with them. You should also be able to get some feedback about how your PI sees your strengths and weaknesses
11. Use the opportunities on offer at your institution and attend training courses in aspects of personal and career development which can be extremely beneficial

Appendix: Project methodology and representativeness of respondents

Recruitment of universities

The eight universities participating in this study spanned different types of university as well as a spread of UK locations and consisted of two Russell Group, three 1994 Group, and three post-1992 institutions (see Table A1). One was in Scotland, one in Wales, and six in well-spread parts of England. Some were in large cities, others not.

Survey

The project data were collected using an online questionnaire for researchers, plus interviews with a subset of the researchers and also staff with responsibility for facilitating researchers' career development.

From the 3120 invitations to participate that were sent out, 492 completed questionnaires were received. The overall response rate was 15.8%, with institutional rates ranging between 11.1% and 31.5% (see Table A1). The overall number of responses was reasonably good, and it represents about 1.2% of the total number of researchers employed by UK HEIs[41].

As agreed at the outset of the project, the anonymised data for each university were made available to the contact person at each participating university in case they wished to conduct supplementary analyses.

Interviews

At least one person in each university with responsibility for facilitating researcher career development offered to be interviewed. Potential researcher interviewees were identified using a question on the questionnaire which asked respondents to indicate whether they would be willing to be contacted about the possibility of being interviewed. In each university, some of those who replied in the affirmative were approached by the project team in order to explain more about the interview and (if appropriate) to make the practical arrangements. In universities with low numbers of respondents all those who ticked the box were approached. In others, potential interviewees were selected to represent a range of researcher characteristics, including age, discipline and gender. For practical reasons it was usually necessary to cluster the interviews into one or two days, so choice of interviewees also depended partly on their availability.

A total of 46 researchers were interviewed (typically six per university, as specified in the project proposal). All were interviewed individually, 44 face to face and two by phone. A total of 18 staff with responsibility for researcher career development were interviewed (between one and three per university). These were all face to face. Ten of these interviews were with individuals, and four were with pairs of interviewees.

Characteristics of the respondents

From Table A1 it can be seen that three out of every five respondents were female, and more than two thirds had a doctoral qualification. Three quarters of the respondents were on a fixed-term employment contract, and of these, half had a contract of two years or less. Two thirds of the respondents described themselves as white and from one of the countries making up the United Kingdom. A further fifth described themselves as white and not British. That meant that about one in eight respondents reported an ethnic affiliation other than white. These people were split about one third British and two thirds not British. About one in sixteen respondents indicated that they had a disability (just one person indicated more than one disability). Median tenure at their university was 3-4 years, with 5-6 years total in research not including time as a postgraduate research studying for a doctorate. Four broad subject areas each accounted for between a quarter and a sixth of respondents: social and business studies; medicine and allied subjects; biological sciences; and physical, computing and mathematical sciences. Smaller but not negligible numbers were in engineering and technology, and humanities. Regarding age, just over half the respondents were in their 30s, with just under a fifth each in their 20s and 40s. Still, more than one in ten respondents were at least 50 years old.

Naturally there were variations between the participating universities in their respondent profiles. For the purposes of this report, we aggregate these into the three categories of university: Russell Group, 1994 Group, and post-1992. The differences need to be borne in mind when interpreting later analyses, because what appears to be a difference between types of university may in fact be due to something about the on-average characteristics of people in each type.

The post-1992 universities had somewhat higher proportions of respondents who were white British, and somewhat lower proportions of white non-British than the other two types. They also had a slightly higher proportion of respondents with a disability. Regarding subject areas, respondents in the Russell Group universities were more likely than others to be working in the life sciences. 1994 Group respondents were somewhat more likely to be in the physical sciences or engineering, and the post-1992 respondents in humanities or social/business studies. However, although highly statistically significant, these trends were not extreme. There were at least ten respondents in each broad subject area in each type of university, and usually a lot more. Respondents in post-1992 universities were somewhat less likely than others to hold a doctorate. post-1992 respondents on fixed-term contracts on average had contracts of shorter duration than others. However, Post-1992 respondents were also far more likely than others to be on an open-ended contract rather than a fixed-term one. Forty-three per cent of them were, compared with 24% of 1994 Group respondents and 16% of Russell Group respondents.

[41] www.hesa.ac.uk/index.php?option=com_content&task=view&id=1590&Itemid=161

Representativeness of respondents

Representativeness within institution

We were able to obtain demographic data about their researcher populations from seven of our eight universities. Comparing these with our respondents, some differences are evident. The most notable is that whilst the split between men and women was 53/47 amongst the researcher populations in those seven institutions, amongst our respondents it was 39/61. A small part of this would be accounted for by intentional over-sampling of the relatively small number of arts/humanities researchers in one university. Overall, though, it is clear that women were more likely than men to respond to our questionnaire. To a somewhat lesser extent the same has been true of CROS.

Universities defined ethnicity in various ways. For example, sometimes white British was a separate category, and sometimes it was not. Nevertheless, it appeared that the respondents contained a slightly higher proportion (about 7% higher) of white and/or white British people than the overall researcher population in those universities. On the other hand respondents were quite closely representative of the age profiles of the universities' researcher populations. Finally, the proportion of respondents who have a disability was somewhat higher than in the researcher populations as a whole. This may be because some respondents who are not registered as having a disability nevertheless considered that they did, and responded accordingly.

Table A1: Respondent demographics by institution

	Russell A	Russell B	1994 A	1994 B	1994 C	Post 1992 A	Post 1992 B	Post 1992 C	Overall	CROS 2011 or [2009]**
Total respondents	111	74	80	63	59	53	24	28	492	5,585
Response rate (%)	13.9	11.1	23.3	18.5	11.8	31.5	17.1	16.7	15.8	25
% female	61.5	67.6	58.4	63.5	54.2	53.8	58.3	71.4	60.9	53
% on fixed-term contract	87.7	79.7	69.4	78.7	82.5	39.6	63.6	88.0	75.3	77
of fixed-terms, % ≤ 2 years	48.4	47.5	56.4	56.3	40.0	73.9	61.6	91.7	54.1	50
% with a disability	5.4	2.7	5.0	7.9	1.7	13.2	12.5	7.1	6.1	5
% aged 20-29	22.5	11.0	19.2	17.5	23.7	25.0	0	39.3	19.9	[23]
% aged 30-39	53.1	57.6	47.6	42.8	59.4	51.9	62.5	35.7	51.6	[50]
% aged 40-49	12.6	19.2	21.8	17.4	13.6	17.3	29.2	14.3	17.2	[17]
% aged 50+	11.7	12.3	11.5	22.2	3.4	5.8	8.4	10.7	11.2	[9]
Median tenure range (years) as researcher at this HEI	3-4	3-4	3-4	5-6	1-2	3-4	5-6	1-2	3-4	4-5
Median years total research experience	5-6	5-6	3-4	5-6	3-4	5-6	5-6	3-4	5-6	4-5
% with doctoral qualification	72.1	81.1	68.8	69.4	81.4	49.1	70.8	39.3	69.3	81
% seeking research career*	35.2	44.3	23.4	39.0	36.8	53.1	61.9	51.9	39.3	
% seeking university lecturing career*	23.1	20.0	42.6	19.6	17.5	14.3	14.3	18.5	22.9	
% White British	68.2	59.4	62.7	73.7	45.5	74.5	81.8	84.0	66.2	61
% Non-white British	3.7	1.4	1.3	1.8	16.4	2.0	4.5	4.0	4.1	
% White non-British	19.6	36.2	17.3	22.8	27.9	9.8	13.6	8.0	21.0	
% Non-white non-British	8.4	2.9	18.7	1.8	10.3	13.7	0	4.0	8.7	
% biological sciences	26.1	29.2	0	18.3	30.5	7.7	27.3	7.1	19.1	28
% engineering and technology	6.3	4.2	42.5	0	6.8	15.4	4.5	10.7	11.9	13
% humanities	5.4	9.7	5.5	8.3	3.4	13.5	18.2	7.1	7.8	8
% physical, computing and mathematical sciences	13.5	22.2	17.8	28.3	18.6	7.7	22.7	3.6	17.2	19
% social and business studies	21.6	16.7	30.1	25.0	5.1	46.2	13.6	39.3	23.9	12
% medicine and allied subjects	27.0	18.1	4.1	20.0	35.6	9.6	13.6	32.1	20.1	21

Note: for all demographic variables, percentages shown are rounded and refer to the percentage of those who provided data on that variable, not the total number of respondents.

*Please see text in Table A2 for how these categories were defined. Where comparable, CROS 2011 figures have been included

** CROS 2009 figures have been used as the age ranges were exactly the same as those used in this study, while the CROS 2011 age ranges were slightly different

Representativeness compared to UK researcher demographics

Comparisons, where possible have been made between the respondents in this study with data from CROS (2009 or 2011) and HESA[42]. When added together, the researcher populations of our eight participating universities quite closely matched the CROS 2011 respondent demographics (and therefore the overall UK HEI population of researchers) in terms of age, ethnic affiliation and disability[43]. Thus the respondents in this study are broadly representative of the UK researcher population as a whole, as well as to these universities.

Table A2: Defining subgroups of respondents

Theme	Subgroup definition
Type of university	Three subgroups: Russell Group; 1994 Group; post-1992
Gender	Two subgroups: men and women
Age	Nine subgroups: 20-24; 25-29; 30-34; 35-39; 40-44; 45-49; 50-54; 55-59; 60+. In most analyses, the youngest and oldest group (both of which contained only a few people) were combined with the adjacent one
Contracts	Two different distinctions here. First, open-ended vs fixed-term. Second, amongst fixed-term only, length of contract. 6 months or less; 7-12 months; 13-24 months; 25-36 months; 37-48 months; 49 months+
Broad subject area	Rather like nationality/ethnicity below, the subgroups here were partly defined by who responded. Nineteen subject areas were offered on the questionnaire, and these were reduced to six for analysis: biological sciences; medicine and allied subjects; engineering and technology; physical, computing and mathematical sciences; humanities; and social and business studies. For the analyses on which Table A1 is based, these were further reduced to three subgroups, each containing two of the six just listed in the order shown: life sciences; physical sciences; social sciences and humanities.
Nationality/ ethnicity	Two different distinctions here. First, a combination of criteria (including the people who happened to respond) was used to develop an idiosyncratic but meaningful typology: UK and its constituent parts; Anglophone developed world; EU; Rest of world. Second, data on ethnic affiliation and nationality were combined to create a four-way distinction: black british; white british: black non-british and white non-british. This is particularly blunt because "Black" includes all non-white categories e.g. Asian.
Career aspiration	Respondents were asked about possible career directions in five categories: university research, university lecturing, research outside higher education, work in the same field but not in teaching or research and something quite different. As a first step, it was established that 87 respondents gave a higher rating to university research than to all the other four career options. By the same criterion, 107 favoured university lecturing. Regarding the other three career routes, because their mean scores were lower, respondents were assigned to them if they rated that route higher than the other two non-university ones, and at least equal to both the university ones. This meant that 49 were classified as favouring research outside the university setting, 43 working in the same field but not in teaching or research, and 36 as wanting to try something different. A further 48 gave equal ratings to university research and lecturing, with both higher than the other three options. 98 gave equal ratings to at least two of the non-university routes, and these were at least as high as what was given to university research and university lecturing. The remaining 24 had missing data for one or more of the key variables and therefore could not be classified. Examination of the relationships between the five possible career directions and other variables showed that those who favoured university research tended to be similar to those wanting to work in research outside a university setting as well as those who gave their equal highest rating to both the university research and university lecturing options. The "other" groups (same field but not research or teaching and something completely different) also tended to be similar to each other. So for reporting there were three main groups regarding career aspirations: 'research', 'university lecturing' and 'other'.

[42] The Higher Education Statistics Agency www.hesa.ac.uk

[43] www.vitae.ac.uk/cros

Vitae

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

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
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