

## Skills development and the STFC-Funded PhD

### Introduction

Enthusiasm for their subject is one of the main reasons for STFC-funded students to embark upon a PhD. However, it is also important to most students that their PhD helps them to develop skills that will be useful for the next stage of their career. This guide describes the skills that you can expect to develop as part of your PhD training, the opportunities for training and the careers that previous STFC-funded students have followed.

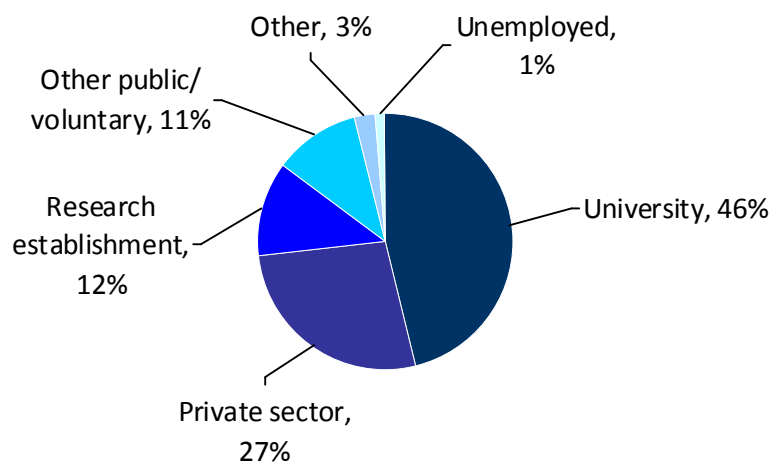
### What skills can STFC-Funded graduates expect to develop?

In 2009, STFC asked PhD graduates who had completed their PhDs six to eight years earlier about their subsequent careers and the most useful skills gained from their PhD training. 95% of those who responded said that their PhD had been very or quite useful in their careers. The top ten most mentioned skills in relation to the career followed were:

- Writing software/ programming skills
- Problem solving
- Subject specific knowledge
- Quantitative data analysis
- Communication & Team working
- Original/innovative/creative thinking
- Written / report writing
- Teaching / mentoring
- Project management
- Research methodologies

### What do STFC-Funded Students do after their PhDs?

In 2009, STFC asked PhD graduates, who had completed their training six to eight years earlier, about their subsequent careers. Nearly half of those who responded were working in a university and just over a quarter were working in the private sector. This represented a substantial change from an earlier survey in 2003, which found that nearly half of those who responded were working in the private sector. Also, in 2003 only 12% were working in the public/ voluntary sector (including research establishments), compared with a total of 23% in 2009. More information about these studies is available from the STFC website, where you can also find a collection of career profiles of former students.<sup>1</sup>



<sup>1</sup> *Delivering World Class Skills: impact of STFC-funded Postgraduate Training, Fourteen Years After: Career profiles of STFC PhD students and Early career profiles of STFC PhD students (all STFC 2010)*



## Training requirements of postgraduate programmes

PhD training programmes must provide appropriate opportunities for students to develop the research, subject specific, communication and other skills they require to become effective researchers, to enhance their employability and assist their career progress after completion of their degree.

Skills training needs vary from student to student, depending on previous experience, and the delivery of any training should be sufficiently flexible to address individual needs. Development can take a variety of formats, including formal training or other activities or being embedded in the PhD programme.

The Joint Statement of Skills ([www.vitae.ac.uk/cms/files/RCUK-Joint-Skills-Statement-2001.pdf](http://www.vitae.ac.uk/cms/files/RCUK-Joint-Skills-Statement-2001.pdf)) sets out the seven areas of skills that should be developed as part of a PhD. Students can use this Statement to help identify their skills development needs.

## Developing Research Skills

The first two areas of the Joint Statement of Skills are *Research Skills & Techniques* and *Research Environment*. STFC organises summer schools and short courses on subjects such as astronomy, solar physics and theoretical elementary particle physics. In addition, your department will offer lecturer courses, which may involve assessment, seminars and other subject specific technical training, and there is usually a formal requirement to prepare a transfer report. The development of other skills in this area may be through day-to-day interactions with supervisors and other researchers or embedded in the PhD programme.

## Developing Transferable Skills

The remaining five areas of skills are defined as transferable skills and include:

- research management,
- personal effectiveness,
- communications skills,
- career management,
- networking & team working.

Transferable skills are generic, personal and professional skills and are an important part of a postgraduate training programme. These skills will support your personal development, improve your ability to plan, manage and complete your research and to communicate your work and help you to be effective in your future career.

Your research group or department may deliver some of the activities for developing transferable skills. In particular, departments often provide presentation skills training and opportunities to present at departmental or group colloquia. In addition to this, the Research Councils provide research organisations with funding for development of these transferable, generic or employment skills (Roberts' skills funding). These activities may be delivered at department, faculty, graduate school or central organisation level and your research organisation may have a formal requirement for you to undertake particular courses or a set number of units. STFC expects its students to undertake ten days of transferable skills training each year.



## Advice from previous students

The 2010 career path survey asked former students what advice they had for current PhD students in planning their career. The three most common pieces of advice were to:

- make the most of the opportunities to develop and demonstrate transferable skills on offer during a PhD
- be proactive in creating career opportunities, in particular by networking
- be aware that employers outside of academia are looking for team working and communication skills as much as technical ability

Former students also identified four skills areas that they felt should have been given more emphasis during their PhDs in order to prepare them for their future careers:

- career planning
- knowledge of the process for funding research
- project management
- build/maintaining networks of contacts

## Employers' views of postgraduates' skills

Vitae have published information on the perceptions of non-academic employers on the strengths and weaknesses of PhD graduates generally<sup>2</sup>. This may be useful when you are thinking about your development or when presenting your skills to potential employers.

### Positive views of employers on skills of PhD graduates and research staff

- Initiative, intellectual ability and capacity to work autonomously
- When PhD candidates held industrial experience, they were considered to be highly commercially aware and showed great capacity to learn
- Seen as high calibre employees: maturity and enthusiasm were mentioned frequently, as was technical proficiency, specialist knowledge and problem solving skills
- Researchers tended to learn quickly and, as a consequence, their progression is speedier

### Negative views of employers view on skills of PhD graduates and research staff

- Difficulty in gaining commercial awareness and in making the transition from one working culture to another
- Lack of flexibility and adaptability with perceived problems of integration
- PhD graduates and research staff have specific aptitudes, but this is not enough in itself to make them attractive to industry
- Overqualified and over specialised, with a narrowness of interest and lack of self-management
- Lack of interpersonal skills, team-working skills and customer orientation
- High expectations in terms of salary and career progression that was disproportionate to their experience

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<sup>2</sup> *Employers' view of researchers' skills A comprehensive review of the existing literature into employers' views of the skills of early career researchers, Vitae 2007*



## GRADschools

GRADschools are a popular activity that could help you to reflect upon and develop skills. These courses encourage you to consider how you can apply your skills now and in the future and aim to help you make more informed choices about the next step of your career. Many universities run their own Gradschools but there is also a small programme of national courses run by Vitae. Vitae is a national organisation which supports the career development of PhD students and research staff and is funded by the Research Councils. You can find more information about Gradschools and other development activities and resources at the Vitae website [www.vitae.ac.uk/events](http://www.vitae.ac.uk/events) or through your institution's postgraduate development programme.

## Other opportunities for developing skills

**Marie Curie Initial Training Networks** offer early-stage researchers the opportunity to improve their research skills, join established research teams and enhance their career prospects for a period of between 3 and 36 months. The normal period for submission of a thesis is extended by the period of the Marie Curie grant and the studentship put into abeyance. To find out about opportunities use the Marie Curie Funding Opportunities Search Tool see [cordis.europa.eu/mc-opportunities/index.cfm?fuseaction=dataForm.doSearch](http://cordis.europa.eu/mc-opportunities/index.cfm?fuseaction=dataForm.doSearch)

**Researchers in Residence** brings together researchers, young people and teachers through placements in secondary schools across the UK. The scheme enriches the classroom experience, engages young people with real-life research and gives researchers the opportunity to develop new skills.

Open to all PhD and postdoctoral researchers funded directly or indirectly by one of the seven UK Research Councils or the Wellcome Trust.

[www.researchersinresidence.ac.uk](http://www.researchersinresidence.ac.uk)

**SET for Britain** is a poster competition and exhibition that aims to encourage, support and promote Britain's early-stage and early-career researchers. [www.setforbritain.org.uk](http://www.setforbritain.org.uk)

### **British Science Association**

**Media Fellowships** provide placements of between 3 and 8 weeks working with a national press, broadcast or internet journalist. Fellows learn to work within the conditions and constraints of the media to produce accurate and well-informed pieces about developments in science. You need to have a minimum of 2 years postgraduate experience (either working or studying) and permission from your funders to take the time out from your research.

[www.britishtscienceassociation.org/web/scienceinsociety/MediaFellowships](http://www.britishtscienceassociation.org/web/scienceinsociety/MediaFellowships)

**perspectives** encourages postgraduate and postdoctoral researchers funded by one of the UK research councils to explore the social and ethical implications of their research and present this through a poster. Finalists must attend a summer workshop before designing their poster. The workshops give communications training as well as advice on poster design.

[www.britishtscienceassociation.org/web/ScienceinSociety/perspectives](http://www.britishtscienceassociation.org/web/ScienceinSociety/perspectives)

**STEM Ambassadors Scheme** provides inspiring role models to young people, opening their minds to the excitement and potential of STEM subjects and careers.

[www.stemnet.org.uk/ambassadors.cfm](http://www.stemnet.org.uk/ambassadors.cfm)