Career paths of academic researchers:
MATHEMATICS

Table of Contents:

1. Mathematics (2 cases)
2. Research Staff Competencies
Mathematics - Alex

After completing a PhD in Maths, Alex held two research contracts over a period of four years before moving to work as a software engineer for a growing consultancy and product supply firm, based in the south of England.

**WHAT PROMPTED YOU TO CONSIDER OTHER OPTIONS?**
It is very difficult to get a lectureship in pure maths and the research area I was in was not really what I wanted. Although the work environment was relaxed with flexible hours, I would like to have spent more time working with others. Getting experience outside academia seemed a good way to develop commercial programming skills, and to achieve a better salary!

**HOW DID YOU FEEL ABOUT THE TRANSFERABILITY OF YOUR SKILLS AND KNOWLEDGE?**
I was confident that I would be able to apply myself well to technical jobs provided they were interesting enough. Whilst my general maths and computer science knowledge were useful, I realised that I needed to target a company prepared to train me. My main concern was about being bored at the job or being in an unpleasant working environment. However, I knew about the company through a personal recommendation and they came across well in my interviews.

**COPING WITH THE TRANSITION**
I found this job through an employment agency whose staff were very good in terms of time and passing feedback to the company. Geographically moving wasn't difficult though it has taken a while to settle in. Everybody is easy to get on with and people have been ready to help. Although the transition process is tiring I feel very happy about my job and the company is giving me time to get up to speed.

**THE APPLICATION & INTERVIEW PROCESS**
I had two interviews for my current job. The first interview was mainly technical and I had to work through two technical problems whilst guided by my two interviewers. The second interview was with the company owner and focused more on what I think of as Personnel (skills and motivation) questions. The technical problem solving questions were very different from an academic interview. I felt I coped with them as well, but I was concerned about whether I came across as enthusiastic enough, particularly as I realised that the company would need to invest a lot in training me.

The Personnel type questions which came up in the second interview included; 'why did you do a Ph.D.?', 'why did you stay in one university as long as you did?'. When asked why I wanted to move out of academia, I avoided being negative and focused on my interest in working on less speculative issues than I had in academia - that is focusing on problems important to industry.

I have since been told that for my organisation very few people fail the 2nd interview and that it is the first one that counts!

**YOUR CURRENT JOB AND FUTURE PLANS**
Programming, understanding the maths of problems and learning code written by others are the main features of the job. The programming is similar to what I was
doing in academia. The main difference is the fact that I am working in a team and so team-working skills are vital. I feel I have less freedom to decide how to work and generally am working longer hours than I did. My intention is to build my programming knowledge and continue in the field of computer programming. I have maintained contact with my university supervisors and would consider re-entering academia, but only if I could focus on exactly the area in which I have most interest.

The working hours in my present job are similar to those at university - around 9.30 - 6pm with occasional periods of longer hours if a deadline is approaching. The work has a very commercial focus and I spend a considerable amount of time communicating with the agency in the U.S.A. which subcontracts work to us. Diplomatic communication and sensitivity to others are both extremely important. There are regular company meetings and, as the company is smaller than my previous department you really get to know the people, to know what's going on.

Update 6 months later: Over the last six months I have become much more responsible for my own work which is different from the close supervision I received in the first six months. Although managers in the USA. and here in the UK decide what I am going to do, I am free to decide how to go about it. I ask for help if I need it rather than having my work checked. As my original supervisor left the company five months after I had joined, I have been able to take on more responsibility earlier because of a redistribution of his responsibilities between myself and another member of the U.S.A. team.

HINTS AND TIPS
· Be clear about your reasons for wanting to leave academia.
· Focus on your motivation.
· Think about the kind of work environment you want and the sort of work style you have.
· Try using an employment agency.
· In an interview, look enthusiastic and try to prepare beforehand for what you think you might be asked - be ready for Personnel type questions.
· Ask yourself how commercially you are prepared to operate and how you will feel about the strong influence customer requirements will have on your work - you may have less freedom to decide how to work.
· Consider the size of organisation you would like to work for.
Mathematics - Kieran

Route into HE
Keiran went straight from school to read Mathematics at a Scottish university, gaining a first class degree, then moved to London to complete a Ph.D.

Reasons for entering Contract Research
· Kieran had no doubt, as a Ph.D. student, that he wanted to continue in research in his subject.
· He felt he was talented and could offer and gain much more.
· He liked the lifestyle.
· He liked the freedom, the travel opportunities and the interaction with other people.

Nature and range of work
· Scientific research.
· Supervision of Ph.D. students.
· Design and delivery of degree lecture courses.
· Consultancy work for external agencies and companies.

Likes about Contract Research
· Working with people who were at opposite ends of an approach to a piece of research and being able to translate issues into a common language and bring them to work together.
· Consultancy opportunities - doing something practical and hands-on.

Dislikes about Contract Research
· Uncertainty.
· Income unsatisfactory.
· Working conditions were not good.
· There was not adequate provision for equipment etc.

Reason for moving on
· A major organisation in the relevant business community made an offer which remedied most of Kieran's concerns as a contract researcher.
· The organisation offered interesting work with high quality people and a huge increase in earnings.

Exploration of Options and Sources
Kieran had contacts in a major international computer company which had sponsored his Ph.D. and these contacts were his main sources. He is now a project manager in a research department with this company. The job involves managing a small team of researchers on projects in new product development.

Messages for Contract Researchers
· Be careful not to be too hasty in accepting offers which, on the face of it, look good but are, in fact, more of a backward career step when looked at closely.
· When organisations take a long time to reach decisions about employment, there may be a good reason - but do not hesitate to make regular and reasonable enquiries about progress.
· Establish what support the supervisor can and will offer and take up accordingly.
· Use the transition period to complete or progress anything which will be of value in the future.
· Check before deciding that a dream is being given up by making the transition out of academia - there may be just as much freedom for research in another career.
· Try to arrange an informal visit to organisations which offer interviews to gain some insight before the formal interview.
· Take any opportunity, both as a student and as a contract researcher, to visit businesses and industry, as often as possible to gain insight into their work, so that it is less of an 'unknown' when making applications at a later date.
· Be sure to have criteria ready for evaluating job offers, in case more than one is made at one time.
· Be aware of what key skills are being developed as different experiences and opportunities are taken up, such as presentation abilities, thinking on feet, helping others sort out problems. These can be developed in research, in consultancy and at conferences, for example and can benefit in different ways.
· Potential new employers will often be impressed by experience/success in finding your own funding, ability in writing good research proposals, gaining others' commitment, consultancy skills and supervisory skills.
· Create and use networks in a range of fora.
· Stay happy and optimistic.
The Competences displayed by Contract Research Staff who make a successful transition from one career to another

1. COMMUNICATION

1.1 Making an impact
· writes to provide evidence of suitability
· writes concisely and unambiguously, with a variety of layouts to help the reader
· presents self effectively in interviews and presentations with the intention of demonstrating strengths for the post
· asks questions to ensure the post and organisation are appropriate for the candidate
· articulates constraints (such as geographical limitations) effectively

1.2 Networking effectively
· networks with people who can influence
· uses a wide range of sources of information, both print and electronic
· builds relationships with named people in careers services or recruitment agencies
· asks questions of careers/recruitment staff to ensure that they understand what is sought and what will be suitable
· scans the environment by asking questions, visiting appropriate web sites and listening to people who might have an idea about the future

1.3. Persuading
· uses well reasoned arguments in applications, interviews and presentations
· is thoroughly prepared for application and interview - having researched the organisation and its environment and being fully self aware
· provides a range of examples of achievements which used relevant key skills

2. COGNITIVE

2.1 Positive/analytical thinking and use of judgement
· positive thinker, when things go wrong, looking forward and putting effort into next attempt
· sees potential in things which are not immediately obviously suitable
· uses judgement to assess the suitability of a post in relation to key skills, preferences and potential
· analytical thinker in identifying own strengths, key skills from experience in the present and previous positions and relating them to requirements of new posts
· makes timely decisions to take action (or not)

2.2 Lateral/creative/conceptual thinking
· lateral thinker, in looking far outside the expected posts in seeking a change - systematically assembles and presents relevant data about self and links it to qualities required for posts
· makes connections between unrelated fields of work and the application of key skills
· innovative in seeking posts and presenting oneself as a candidate
· uses initiative to make self known to people who can help

2.3 Political/Collaborative thinking
· strategic thinker, planning the 'campaign' for finding a new career
• understands the political implications of situations and events by being sensitive to the environment in which an organisation is operating and to interview questions or answers to candidate's questions
• collaborates with colleagues, friends and advisers who can give advice or feedback to help the process of changing career

3. SELF DEVELOPMENT

• undertakes voluntary work/work shadowing to get experience to help in decision making
• uses mentors to support transition
• gets additional qualifications to help transition
• has an ongoing personal development plan which is regularly updated

4. SELF MANAGEMENT

4.1 Positive/enthusiastic
• realistic about how long things will take and expectations
• has energy
• is enthusiastic - talks with passion/sees a positive side to everything/does things does with good spirit even when they are not preferred tasks
• responsible - works to standards expected/meets deadlines/has pride in work and self

4.2 Persistence/stamina
• persistent in making applications despite disappointments
• stamina to keep making consistently high quality applications and attend and make an impression at interviews whilst still maintaining standards in current duties and responsibilities

4.3 Flexible/open-minded
• flexible, in listening to feedback which requires action not previously thought of and in applying for posts which had not appeared appropriate formerly
• open minded in applying for a range of posts which require key skills but will need a lot of new learning as well
• inquisitive about what the world outside academia has to offer
• does not dismiss anything

4.4 Self confident and self controlled
• talks objectively about strengths, needs for development and achievements - with evidence
• self aware - has a list of everything to offer an employer, backed by evidence for previous performance (at work or elsewhere)
• objective - looking at things as they are - without bias from past experience
• adaptable, being willing to try new things which are necessary to progress in the direction required to fit a career plan
• assertive
• self controlled when facing anger, disappointment, frustration and able to vent these emotions quickly and then move forward positively
• has a clear vision for self
• insightful - knows how to build a positive reputation
5. DRIVE TO ACHIEVE

- immerses self in finding knowledge about new career field
- proactive in seeking new opportunities
- uses external resources to help achieve goals
- pays attention to detail