PhD Study to Employment: Experiences of Transition

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August 2016
Acknowledgements

We would like to thank the doctoral graduates we interviewed for their time and participation, as well as their employers for providing access. We are grateful to HECSU for funding the project and to Stephen Mullan in QUB Video Media Services for his work on the project. Thank you to Amber Crozier for report and website design and production and also to Jane McKee and Stuart Ogg for their assistance with administration and resources.
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Executive Summary

Introduction

Whilst numerous studies have looked at the transition of graduates, few qualitative studies focus on the experiences of recent doctoral graduates. This project aimed to develop a better understanding of experiences of transition through the use of qualitative research. 12 in-depth semi-structured interviews were conducted with a targeted sample of doctoral graduates across disciplines and working in a range of roles, both within and mainly beyond academia. Thematic analysis was conducted to identify key themes relating to challenges faced, value of doctoral study in relation to employment and career management strategies that support a successful transition.

Key Findings

Challenges for PhD graduates

Doctoral graduates faced a number of challenges when moving from PhD to early employment:

- Many did not have a clear career plan at the early stages of their PhD
- The increasing competitiveness of the academic job market and perceived pressures of academia often influenced in career decisions
- Employers outside of academia did not always recognise the value of the PhD
- Doctoral graduates had to adapt to a new working environment, frequently noting contrasts in the structure of the working day, increased working as part of a team and reduced autonomy

How the PhD prepares graduates for early employment

All graduates were in agreement that the transferable skills that they had gained over the course of the PhD were essential for both acquiring and working in their current role. Although participants came from different disciplines, there was a high degree of consistency in the key skills identified including:

- critical thinking
- problem solving
- project management
- research skills
- networking
- communication

In terms of preparation for employment, the central value of the PhD was felt to be through facilitating development of these transferable skills. Participants also identified resilience as being developed through the PhD and relevant for their employment.
“I think it definitely gave you the edge in terms of level of experience, your expertise, and the range of different things you gain, the difficulties you face and how you’d overcome them. It definitely gave me a lot to talk about in interviews.”

[Physical Sciences PhD Graduate, working in the Voluntary Sector]

Some participants noted that the PhD also provided a certain level of status.

Career management
The importance of proactive career management and development was emphasised, with participants highlighting the importance of recognising and seizing opportunities, making use of available career support services and gaining practical experience. Doctoral graduates highlighted the competitiveness of the current labour market and the need to prepare and be able to effectively articulate their transferable skills in order to compete successfully within the selection process. Those who had moved beyond academia spoke eagerly about how rewarding an experience other options could be.

“Don’t necessarily think that you have to stay in academia ….the skills that you learn during your PhD are very transferable, you might not just be aware of that... It is interesting to see …. who businesses employ and who they’re looking for because although maybe they’re not saying ‘I want somebody with a PhD’...but [my employers] needed someone with analytics and able to critically evaluate, well, that’s the skills you learn [in a PhD].”

[Life Sciences PhD Graduate, working in Industry]

Encouragingly, virtually all participants both within and beyond academia were extremely happy with their current employment, often reporting intention to stay within their current role or sector.

Conclusion and Recommendations
By providing a detailed account of recent doctoral graduates’ experience of transition, the findings support a number of recommendations for current and recent doctoral graduates, as well as careers and development professionals.

Current postgraduate researchers
- Actively consider career options and plan relevant development during the period of PhD research
- Seek and take opportunities beyond the immediate research project
- Be prepared to clearly articulate the skills gained through completing the PhD
• Aim to clearly distinguish individual value and set self apart from other candidates
• Consider a range of options including those beyond initial preferences
• Utilise available career support services

Recent doctoral graduates
• Be confident in the skills and knowledge gained through the PhD
• Clearly articulate the relevance of skills for the employment context
• Be prepared for the change in work structure and context
• Know that the challenges of early transition can progress to enjoyment of a different environment

Career development professionals and university support services
• Support postgraduate researchers and graduates to consider a range of career options
• Help postgraduate researchers to identify and clearly articulate their transferable skills
• Work with employers to increase awareness of the value doctoral graduates can bring to diverse employment contexts
• Increase opportunities for team working, management experience and work experience as part of the doctoral study programme
Introduction

The number of doctoral students continues to grow both within the UK and globally (CFE Research, 2014) and there is an increasing focus in many universities on supporting the specific career needs of postgraduate researchers. Whilst traditionally it was often assumed that the PhD would lead to an academic career, doctoral graduates are increasingly moving beyond academia. Reviews of the literature have identified a need to address the lack of information regarding experiences of transition from study to employment both within and beyond academia (Radden & Sung, 2009) and to understand research careers outside of academia (Thrift, 2008). Where studies have looked at doctoral graduate employment, these have tended to be large-scale quantitative studies providing overviews of destinations and impact (HECSU, 2006; Vitae, 2013a). Case studies (RCUK, 2014; Vitae, 2013b) that are available focus on the broad context of career paths and career choices, but do not include perspectives on experiences of transition and have not been subject to structured analysis. The small number of studies that have included a qualitative element, tend to focus on graduates at a later stage in their careers, 3-6 years (Purcell & Elias, 2005) or 10 years after graduation (CFE Research, 2014; Innis & Feeney, 2012). Understanding of the early stages of transition is important (Radden & Sung, 2009) as this experience is central to successful career development for graduates.

Early career planning

Although the number of doctoral graduates has increased, at the same time the number of academic roles available has fallen (CFE Research, 2014). While there can remain a perception that doctoral graduates are looking for an academic career, the percentage staying in academia is declining (Vitae, 2013a), with the academic labour market contracting due to funding cuts and a reduction in permanent positions (Radden & Sung, 2009). There is a growing recognition that only a small proportion of those undertaking a PhD will progress into a permanent academic career (European Science Foundation, 2015) and doctoral graduates are entering an increasingly diverse range of career pathways beyond academia (CFE Research, 2014; Purcell & Elias, 2005). It is important for careers professionals to be aware of these choices and to understand how prepared researchers are to look for work outside of the university sector (Jackson, 2007; Roberts, 2002).

Previous research suggests that although some PhD students have clear career choices at an early stage, postgraduate researchers generally start planning their career late in the PhD process (Radden & Sung, 2009). Often the main reason for choosing a PhD is due to interest in the subject and not necessarily to pursue an academic career (Innis, 2010). Purcell and Elias (2005) found that their sample of social science PhD students had formed a clearer idea of their career plans by time of PhD.
completion. Jackson’s (2007) analysis of web-based discussions with final year PhD students found that they often didn’t have a clear job-search strategy, and although many of the participants hadn’t started looking for work, some did identify a need to be proactive. Studies of graduates have found that a goal to make career progress affects their proactive behaviours, which are related to career success in an early career (De Vos, De Clippeleer & Dewilde, 2009). It has been noted that career choice is also shaped by labour market conditions (Radden & Sung, 2009). Difficulties reported by doctoral graduates include the timing of the recruitment process and pressure to find time for job hunting whilst completing their doctoral study (Jackson, 2007). In hindsight, PhD graduates note the importance of contacts (European Science Foundation, 2015) and would welcome more support with job search strategies (Jackson, 2007). Job search methods used included journal listings, academic contacts, careers centre support (Langlands, 2005) supervisors, recruitment agencies, networks and internet searches (Jackson 2007).

Career choice

In their large scale study of doctoral graduates, CFE Research (2014) identified four main reasons for deciding to leave academia after completing the PhD: lack of suitable opportunities; disillusionment with academia; motivation to gain industrial experience; and the feeling that academia did not suit their personality or strengths. Other research supports these findings, with motivation for moving outside of academia due to limited opportunities identified by Purcell and Elias (2005), and negative perceptions of higher education found by Souter (2005). Other research identified a range of factors positively motivating doctoral graduates towards industry or the private sector including job-security; financial reward; variety of work; opportunity to apply new skills; development; and career progression opportunities (Radden & Sung, 2009; Thrift, 2008 Souter, 2005). Roles outside of higher education are often perceived as presenting less opportunity for creativity and intellectual freedom, and previous studies have found concerns about the need to complete additional training and compete in a less familiar environment (Jackson, 2007; Radden & Sung, 2009). Reasons to stay in academia often include a desire for autonomy, intellectual freedom and the opportunity to publish research (Radden & Sung, 2009; Roach & Sauermann, 2010). Many studies have reported a perception that supervisors are less likely to be supportive of careers beyond academia, viewing an academic career as the superior choice or assuming it to be the main option (Jackson, 2007; Radden & Sung, 2009; Souter, 2005).
Employability

There is evidence of greater employability of doctoral graduates compared to first degree graduates (Vitae, 2013a; Radden & Sung, 2009). Unemployment periods for doctoral graduates tend to be short-term, after a contract ends or due to local labour market and mobility factors (CFE Research, 2014). As would be expected, the PhD is much more likely to be essential or viewed as very relevant for academic jobs (CFE Research, 2014; European Science Foundation, 2015; Innis, 2010; Purcell et & Elias 2005; Radden & Sung, 2009; Vitae, 2013a). Outside of academia, the PhD is generally unlikely to be a formal requirement, although roles in physical science, engineering, research and development and health sectors may specifically require it (CFE Research, 2014; McCarthy & Simm, 2006). Some employers, for example, in industry, business and consulting roles, actively target PhD graduates (CFE Research, 2014; Jackson, 2007; Jagger & Connor, 2001; The Rugby Team, 2007) and can report a challenge in making PhD students aware of opportunities (Jackson, 2007). However the majority of employers do not specifically target doctoral graduates (CFE Research, 2014; Jackson, 2007; Souter, 2005). The value placed on the PhD can also be indicated by employers’ willingness to pay a salary premium, although research indicates that only a minority offer this (CFE Research, 2014; The Rugby Team, 2007). Doctoral graduates across disciplines and sectors report that they generally view their PhD as having value (CFE Research, 2014; European Science Foundation, 2015; Jackson, 2007; Innis, 2010; Purcell & Elias, 2005; Radden & Sung, 2009; Vitae, 2013a) and those working in roles that did not directly require a PhD do not regret completing the PhD (CFE Research, 2014; European Science Foundation, 2015). Radden and Sung (2009) identified potential difficulties in transitioning into employment both within higher education, where graduates have to adapt to increased academic pressure, and outside of higher education, where the pace and tasks involved can contrast with the PhD experience.

Articulating Skills

As noted by Purcell and Elias (2005), outside of academia, it is often the skills developed through the PhD that are most important. Previous research has indicated that PhD graduates do not always fully recognise or feel prepared to articulate the skills they have acquired (Jackson, 2007; Radden & Sung 2009; Souter, 2005). It has been noted that postgraduate researchers may find it challenging to present their skills in a way that is relevant to employers (McCarthy & Simm, 2006; Souter, 2006). The UK Council for Graduate Education (UKCGE, 2000) identify the need for universities to support students in demonstrating how their skills are applicable for employers and also highlight the importance of developing employability skills for careers both within and outside of academia. There has been an increased focus on developing transferable skills, following recommendations by the
Roberts (2002) review. Analysis of interviews with science and technology doctoral students and graduates identified that the doctorate mainly emphasised technical skills, but also developed personal, social and management skills (Pole, 2000). UK universities continue to support development of a range of skills. Recent studies by Lee, Miozzo and Laredo (2010) as well as Jackson and Michelson (2015) highlight the importance of developing non-technical skills, such as communication, project management, problem solving and analytical skills.

In previous studies, PhD students and graduates identified a range of skills developed including analytical, organisational, management, networking, communication, project planning, collaboration, independent study and problem-solving skills (Jackson, 2007; Souter, 2005; Radden & Sung, 2009; CFE Research, 2014). As would be expected, given that the activities involved in academic work link closely to PhD skills (Blaxter, Hughes & Tight, 1998) skills developed tend to be viewed as especially relevant for academic jobs. However research has also indicated the skills are felt to be highly relevant outside academia (CFE Research, 2014; Purcell & Elias, 2005; Radden & Sung, 2009).

Research has also looked at skills that are perceived to be less developed as part of PhD study. Skills identified by doctoral graduates as being important in their current role, but where formal training is less likely to be included as part of doctoral study include leadership, teamwork, project management and communication skills (CFE Research, 2014; Innis 2010; Jackson 2007; Purcell & Elias, 2005). Purcell and Elias (2005) also found that few graduates had received formal training in career management skills. Employers report the importance of work experience (CIHE, 2010; Souter, 2005) which is often seen as more important than qualifications (CFE Research, 2014; Radden & Sung, 2009). The value of work experience is also acknowledged by graduates (Scott, 2014) and is supported by wider research which links previous experience to an increased chance of gaining employment (Jackson & Michelson, 2015; Salas-Valesco, 2007).

**Employers’ perceptions of doctoral graduates**

In line with the feedback from PhD graduates, employers of doctoral graduates have identified a similar range of skills that they bring, including communication; presentation; creativity; ability to learn quickly; problem solving; and ability to work independently as well as technical and research skills, (CIHE, 2010; CFE Research, 2014; Jackson, 2007; Mangematin, 2000; Radden & Sung, 2009). Employers also identify motivation, confidence and resilience as key qualities developed through the PhD (CFE Research, 2014).
Previous research indicates some negative perceptions of doctoral graduates among employers who have not had direct experience of hiring individuals with a PhD (CFE Research, 2014). Some employers assumed that PhD graduates would have unrealistically high salary expectations (CIHE, 2010; Jackson, 2007; Souter, 2005), would be too specialised and would have difficulties adapting to the working environment (CFE Research, 2014; CIHE 2010; McCarthy & Simm, 2006; Purcell & Elias, 2005; The Rugby Team, 2007; Souter, 2005). Doctoral graduates also felt that employers assumed they had limited work experience, a narrow focus and high expectations (CFE Research, 2014; McCarthy & Simm, 2006; Radden & Sung, 2009; Souter, 2005). Some doctoral graduates reported that they would not refer to the PhD in order to avoid being seen as overqualified (CFE Research, 2014; Jackson, 2007). In contrast, some reported that there was a sense of status associated with the PhD which could be an advantage (CFE Research, 2014; Radden & Sung, 2009).

Job satisfaction

Job satisfaction and career commitment are important indicators of subjective career success (Pan & Zhou, 2015) and recent studies have explored doctoral graduates’ level of job satisfaction. Outside of academia, studies have found a high level of satisfaction often associated with job security, interest in work, opportunities to apply skills and make a contribution, and opportunities for promotion and development (Innis, 2010; Innis & Feeney, 2012; Jackson, 2007; Purcell & Elias, 2005; Radden & Sung, 2009). The majority of doctoral graduates both within and beyond academia express intention to stay in their current sector (Innis, 2010; Innis & Feeney, 2012), also indicating a level of satisfaction with their position.

Project aim

The aim of the project was to develop a better understanding of experiences of transition from PhD study to employment. A qualitative approach was taken to explore experiences in the early stages (1-2 years immediately following graduation) with the aim of complementing previous survey-based approaches with a more in-depth study to enhance our understanding (Jackson, 2007). It is anticipated that this knowledge will provide valuable insight for careers staff, PhD students, recent graduates and potential PhD students regarding the early pathway from PhD to employment. As identified by Radden and Sung (2009), this increased awareness should facilitate effective preparation of PhD graduates to make successful employment transitions.
Research Questions

To encapsulate the project aims, three research questions were identified and formed the basis of the interview schedule:

- What challenges do doctoral graduates experience moving from their PhD to early employment?
- How does PhD study prepare graduates for employment?
- What is needed to make a successful transition from PhD to employment and how can this inform effective career management for current PhD students?
Method

12 in-depth semi-structured interviews were conducted with a targeted sample of doctoral graduates across disciplines and working in a range of roles, both within and mainly beyond academia. The sample was purposively selected to represent diversity in terms of discipline, industry and gender, in order to develop a deeper and fuller understanding of postgraduate researchers’ transitions. Interviews explored experiences of transition including factors influencing transition experiences, challenges faced, adaptations required, relevance of PhD study, application of skills and knowledge and utilisation of career management techniques. A copy of the interview schedule is attached as Appendix 1. Interviews were conducted either to face-to-face, via phone or via Skype, to meet participants’ preferences. Full ethical approval was agreed prior to commencement of the project, addressing issues of data confidentiality, informed consent and right to withdraw. Interviews were conducted and recorded by a trained and experienced qualitative researcher. Data was transcribed and thematic analysis conducted, utilising Braun and Clarke’s (2006) phased approach, to explore and identify key themes in relation to the research questions. In addition, with prior permission of the participants, three of the interviews were video-recorded to provide content for video case studies. Video transcripts were edited and approved by participants prior to dissemination.

Participants

A targeted sample who had graduated with a PhD from Queen’s University Belfast within the last 2 years and were now in employment were invited to participate. A range of sources and contacts were used to identify potential participants including QUB PhD Alumni list, LinkedIn, Graduate School networks, employer contacts and previous alumni. A total of 49 contacts were made in order to schedule 12 interviews representing the diversity required for the project.

Due to the nature of the recruitment methods, it should be noted that participants from the sample may by more likely to be employed in a defined role, be willing to be contacted by the university and be familiar with the Graduate School careers services. 3 participants were known to the lead researcher at time of recruitment, although it became clear over the course of interviews that a number of additional participants had also previously used the Graduate School PGR Careers Services. The interviewer was a current postgraduate researcher who had no prior knowledge of any of the participants. Participants represented a range of disciplinary areas including accounting, biological sciences, drama, electrical engineering, environmental planning, history, mathematics, medicine, pharmacy and social work. A range of sectors and job roles were represented with 5 from the private sector, 4 from the public sector and 3 from the voluntary sector. 2 participants worked in academia,
3 in research roles outside of academic research and the other 7 working in a range of roles including management, data analysis and scientific roles.
Findings

What challenges do doctoral graduates experience moving from their PhD to early employment?

Career planning
Many of the participants in the study did not have a definite career path in mind when they began their PhD, remarking that the “main career plan was to (...) do it.”

“I didn’t really have too many plans at the start to be honest. Uhm, because my PhD was four years so I said to myself, I would handle it in my final year.”

[Life Sciences, Conservation]

For most, considering what they would do next only began in the final year of the PhD, as their funding began to draw to an end. Several had hoped to stay within the field of academia, but they perceived that the job market was increasingly competitive and felt that this was a less feasible option.

“I mean the reality is, 20 years ago, people coming out of a PhD would have walked into a lectureship. (...) It’s just not like that anymore.”

[Life Sciences, Voluntary Sector]

“It’s such a strange position to be in, because you know, you’re so technically well-educated but there’s really not that many jobs going. I mean I can actually remember after completing my PhD, I applied for a job at a local bar [...] and they wouldn’t even give me an interview. (...) That’s the crushing thing, you know, just getting knock back, after knock back, after knock back.”

[Arts and Humanities, Voluntary Sector]

Yet within our sample, there were a number who were very clear that they no longer wanted to stay within academia, for reasons varying from wanting to learn new skills and challenge themselves, to being discouraged from the path after observing other academics over the course of their PhD. Indeed, the changing face of modern academia seemed to have a very distinct impact on many of our participants.
Graduates who chose to move away from academia faced their own set of challenges, beginning with the struggle of where to find advice on employment outside of the academic field.

“Seeing how great [older graduates] were (...) but still having to continually fight for posts, or fight for part-time jobs. Ehm, that continual proving of themselves. (...) I was seeing an awful lot of, ehm, really great talented people not getting their academic post and it taking quite a long time.”

(Art and Humanities, Consulting)

“I just didn’t particularly like the way of working in the university and (...) I guess the pressures that I could see on my supervisor? I wouldn’t have liked them to be on me.”

(Life Sciences, Conservation)

Perceptions of employers outside academia
A particular challenge for those who sought employment outside of academia was the problem of potential employers not recognising the value of a PhD, making the interview process difficult. Some participants found that they had to struggle to prove to employers that they possessed enough business acumen to work outside of academia.

“Outside of [academia], I didn’t really know much about what was potentially available for a PhD because people usually told me a PhD was only relevant for academic careers so... I didn’t really know outside of that what I might be able to do.”

(Social Sciences, Public Sector)

“You may find it difficult just to find that transition ‘cause there’s an attitude sometimes that you’re lost to academia, that you’re not capable of functioning in (...) a job [outside of academia].”

(Physical Sciences/Engineering, Voluntary Sector)
“Quantifying what you’ve learned in your PhD, or what you’ve done in your PhD, quantifying research and the skills that you’ve gained is – was incredibly hard at the start of the job hunt.”

[Arts and Humanities, Consulting]

“Within the business, even currently, people don’t have a clue what – what it entails, or what it actually qualifies you as.”

[Life Sciences, Industry]

“It was kind of hard to differentiate yourself from other people and because [the public sector] wasn’t directly related to my PhD, I found it kind of hard initially whenever I was initially applying, to kind of apply the skills that I’d learnt in my PhD, to kinda show how it was relevant (...) outside of a career in academia.”

[Social Sciences, Public Sector]

“There is a concern that [the PhD] is very niche as well and it’s kind of looking at one specific thing, so (...) you kind of have to demonstrate that you’re not lacking or you have to pick up those other skills (...) you hadn’t looked at since your undergrad or your Masters quite quickly again.”

[Physical Sciences/Engineering, Voluntary Sector]

“Some of the other jobs I was applying for, I think PhD was over-qualified. (...) I don’t know whether some positions felt that you weren’t suitable because maybe you had too much experience in a different field, that they wanted, ehm, people coming straight out of undergraduate (...) that they could then train on the job.”

[Life Sciences, Industry]

“One of the things I did sort of struggle with [in interviews] was whenever they were asking about managing budgets. (...) You do have a certain amount of budget in your PhD but you know, it really is your supervisor (...) as well as managing staff. (...) So it’d be people management and (...) budget management I suppose would be (...) where you’d let yourself down.”

[Life Sciences, Industry]
Challenges beginning work

Further challenges arose for new graduates in their experience of transitioning from study to the workplace. The change in structure of the workday, such as the early mornings was a struggle for one or two participants, although most remarked that they actually enjoyed having a workday with defined hours.

“There are defined working hours, whereas PhD you could be in the lab from 8 AM to 10 PM if - obviously if so required. Ehm, it’s probably quite nice, it’s maybe more of a work-life balance than what there was in a PhD.”

[Life Sciences, Industry]

“It was nice to have those set hours [in work], I think. Towards the end of my PhD in particular it was really long days [...] so it was nice to then come into an environment that you were just fixed hours from nine to five, and it was quite nice having your evenings and your weekends free, and knowing that you could switch off.”

[Physical Sciences/Engineering, Voluntary Sector]

Most participants who moved away from academia mentioned that they initially found the workplace environment quite difficult to adapt to, particularly working as part of a team after coming from the “solitary experience” of the PhD. They also mentioned the strangeness of having someone to answer to, rather than having relative control over their own project.

“Being answerable to someone as well... I mean, in the PhD, you are answerable to your supervisor, but you’re very much given your own leeway to go away and drive your own project (...) and being dictated to was slightly uncomfortable.”

[Life Sciences, Voluntary Sector]
Encouragingly, participants tended to come to enjoy the change in environment, and embraced working as part of a team rather than on their own.

“I found it pretty (...) hard to be honest because...like for the past four years, I had been like...cooped up in a room (...) kind of always working on our own. And then going from working on my own all the time to being in an office of like fifty people, with people like constantly talking around you and all that kind of stuff, like I found it really hard to like, initially adapt.”

[Social Sciences, Public Sector]

“With your PhD, you have a lot more authority and you get to be, ehm – well, in tandem with your supervisor – are sort of your own boss sometimes? And you aren’t that in the job I’m doing now.”

[Arts and Humanities, Consulting]

“Having worked on my PhD and worked on my own for such a long period of time, to then come into this environment where you are expected to speak up at team meetings and have huddles (...) I found it very difficult having worked on my own for such a long period of time.”

[Physical Sciences/Engineering, Voluntary Sector]

Encouragingly, participants tended to come to enjoy the change in environment, and embraced working as part of a team rather than on their own.

“It was nice to feel part of a wider organisation as well, feel like you’re all working towards a common goal (...) and they do try encourage people to come together and collaborate (...) whereas again, in your PhD, you’re very much siloed and you’re kind of working on your own.”

[Physical Sciences/Engineering, Voluntary Sector]

“I came out of my cave! (...) Yeah, it was a big change, but it was good to have that social element ‘cause PhD can be very solitary at times.”

[Social Sciences, Public Sector]

An additional challenge was that several participants found themselves in position where they had to find employment before they had actually finished their PhD, which posed difficulties when it came to both job interviews, and finding the time to fit working on their PhD into their workday.
How does a PhD help prepare graduates for early employment?

Transferable skills

Over the course of each interview, it became overwhelmingly clear that what had benefitted each of our graduates the most in terms of finding a job after their PhD were the transferable skills they had attained during their post-graduate research. The majority of the graduates we interviewed had left the field of academia, and yet remarked that the ways in which they performed their current job followed a very similar structure to the way they had conducted their PhD research.

“Your PhD being the first year that you go into is that is (...) reviewing the literature and trying to make sense of what other people have done, so you can relate to what you’re trying to do? And that’s definitely been an aspect of what I’ve been doing here. (...) In terms of that kind of approach that you would take to solving a problem or conducting a piece of research, ehm... It would be the same from that perspective. (...) I’ve presented at a lot of different conferences and my PhD definitely prepared me well for that. (...) I suppose working with others in terms of extra demonstrating and the lecturing, trying to explain how to do things.”

[Physical Sciences/Engineering, Voluntary Sector]

“What the PhD has done, has been giving me skills that have been very, very useful in my work. (...) We had to give lectures and seminars [in Queens]. (...) So every day, be it you know, dealing with the public, meeting deadlines (...) developing something, a PhD develops and you have to plan ahead, and I think the PhD has been very good for me, being a development manager, in taking the house somewhere because you have to take an idea and you have to run with it.”

[Arts and Humanities, Voluntary Sector]
Despite the fact that nearly every participant came from a different discipline, they all reported more-or-less the same set of transferable skills that had proven useful to them in both acquiring employment, and in performing the job they were currently in. As well as subject-specific knowledge, research and critical thinking skills, participants identified a number of common transferable skills:

Resilience

Participants generally commented upon the lesson in resilience that doing a PhD teaches an individual.

“Obviously PhD is very good for, ehm, allowing you to develop your skills and being able to work independently and plan experiments and carry them through and obviously write them up. (...) In employment now, you’re expected to do that as well. (...) So you have the same aspects of it: your planning, your preparation, your analysis and then your final reports, and that you have developed a successful product. (...) I definitely think that the PhD was invaluable in allowing me to develop those skills to then move into employment and I know I think PhDs now are...it’s very much about the transferable skills.”

[Life Sciences, Industry]

“Even in terms of facing challenging situations in times of adversity, demonstrating, you know, the PhD really required me to become quite resilient and to find creative ways around issues.”

[Physical Sciences/Engineering, Voluntary Sector]

“You obviously have to overcome a lot of challenges when you’re doing your PhD (...) you have to become quite a resilient person. So it’s probably a good exercise in (...) developing resilience to, you know, difficult working conditions.”

[Life Sciences, Academia]

“[During the PhD] I attained the confidence to...to face a problem, to challenge and face any challenge. Even if it’s not something research particular, maybe in job or in life and you go to the method, you go to the methodology to solve it.”

[Physical Sciences/Engineering, Industry]
Communication and presentation

Over the course of a PhD, students usually participate in conferences where they present their work to a variety of audiences, sometimes including those outside of their field. This skill was singled out by several graduates as one that had served them well in their current employment.

“Communication is definitely another big one that’s coming across, you need to be able to explain to non-technical audiences your findings, the approach you used, the assumptions that you made, so I think it’s definitely about being confident in your ability to communicate things clearly in a succinct way.”

[Physical Sciences/Engineering, Voluntary Sector]

“[The] ability to communicate complex information quite simply to a range of audiences,”

[Life Sciences, Voluntary Sector]

“Learning how to present your – your findings to range of people, you know, whenever I was doing my PhD (…) I was presenting to farmers’ groups, I was presenting to school groups, academic conferences (…) and it’s the same here. I definitely, whenever I was eh, doing the PhD and here now, know how to change the information that I have in order to fit it the best way to convey that to the audience.”

[Life Sciences, Industry]

Project management

The ability to manage and own responsibility for a long-term project was also something that graduates said they found not only useful, but something that had appealed to their employers when they were being considered for a job.

“[On what stood out to their employer] Time management, ehm, demonstrating your ability to juggle different things in life instead and still succeed (…) you can sell that to employers.”

[Life Sciences, Voluntary Sector]
“I think one of the main skills that I learnt [during the PhD] was just sort of being able to work on my own and to be like good at time-keeping and like organisation. (...) You have to be like able to (...) self-manage yourself, and I think those skills which I learnt there, I think were really valuable in my next job. (...) I was actually able to use kind of like my organisation that I had learnt from my PhD and like my self-management in that particular job.”

[Social Sciences, Public Sector]

“What was notable for some was that although their job did not advertise looking for someone who actually held a PhD, they only met the job requirements as a result of the transferable skills they had gained during the PhD.

“The PhD wasn’t even a requirement [for the job] but in the job description, a lot of the requirements I only got through my PhD, so it was that way my PhD actually helped me get the job ‘cause I don’t think I would have got it otherwise, because a lot of the requirements (...) I gained them through a PhD.”

[Social Sciences, Public Sector]

“I think it definitely gave you the edge in terms of level of experience, your expertise, and the range of different things you gain, the difficulties you face and how you’d overcome them. It definitely gave me a lot to talk about in interviews, whereas I think that just coming out with a Masters or an undergraduate...you don’t necessarily have that experience.”

[Physical Sciences/Engineering, Voluntary Sector]

**PhD as title/status**

In a similar vein, many of our participants felt that the status of the PhD itself instilled in them a certain set of characteristics that made them desirable to an employer.
"If you have a passion for science then you can, eh, express that through doing your PhD and then come out with experience but also an extremely good qualification that no matter what field you go into (...) you've got the PhD at the end of your name and I think that's a strength."

[Life Sciences, Academia]

"I think there's more trust in you [from employers] (...) you're peer-reviewed, and someone has gone through quite a substantial piece of work and reviewed it and said yes, this person's at that level, I think there's more trust in you, that you're – you know what you're talking about."

[Physical Sciences/Engineering, Voluntary Sector]

Others remarked on the fact that they believed that possessing the title of the PhD itself had impressed their employers to the point that it had helped them get an interview. However, they did note that you could not rely on the title alone during the interview process – you had to be able to demonstrate exactly how the skills you had gained through your PhD made you employable.

"[On PhD being an advantage] The title. Like – you seem to have some sort of, eh, wit about you, (...) they do like that. But as I say, it gets you in the door of the interview. (...) That's really as far as it gets."

[Life Sciences, Industry]

"Once you do manage to get your foot in the door, (...) being Doctor [Participant name] as opposed to being Mister [Participant name] is something which I know [Name of employers] has capitalised on. (...) It nearly carries a little bit of prestige."

[Arts and Humanities, Voluntary Sector]

What is needed to make a successful transition from PhD to employment and how can this inform effective career management for current PhDs?

PhD as an active, not passive, process

One thing that the majority of our graduates were in strong agreement about was the fact that the PhD had to be an active, not a passive process. To get the most out of a PhD, one cannot simply focus solely on producing the thesis itself – you have to get involved in activities that enhance the post-graduate experience, such as training opportunities, placements, conferences, teaching and so forth.
Participants who came from Arts and Humanities disciplines stressed that there was a particular need for students in their fields to make an extra effort to ensure they were proactive in making the most of their PhD experience.

“I think with humanities PhDs, sometimes you can (...) be left alone sometimes with a stack of books, if you’re not proactive about what you want to do. (...) The opportunities are quite scattered sometimes in the Arts. (...) It would probably be more useful for Arts and Humanities anyway to become more interdisciplinary.”

[Arts and Humanities, Consulting]

“[On useful skills to have developed during the PhD process] Probably just focusing on making sure that you’re getting the most out of your PhD, in terms of the experiences you have, whether it’s lab-based or whether it’s you know...depending on what your PhD is.”

[Life Sciences, Industry]

Even for those who wish to pursue a career in academia, the importance of being proactive over the course of the PhD was stressed.
Recognising and seizing opportunities

Feeding into the process of being proactive, graduates emphasised the importance of seeking out, recognising and acting on opportunities that arose over the course of the PhD. Opportunities can vary and several spoke about fellowships and placements they were able to participate in that helped them greatly.

“The most valuable experience of my PhD was the international bits of the scheme. (…) ‘Cause you quantify that when you’re applying for jobs but it also does enrich your research as well. (…) It’s great for your PhD but it’s also great in showing that I can go out there on my own initiative and work with other people.”

[Arts and Humanities, Consulting]

Opportunities for practical experience need not just be in other universities, as one participant pointed out.

“I was unusual in my PhD in that I was given quite a lot of practical experience and that practical experience didn’t come from Queens, it came from, uhm, my mentor. (…) I was taken off and (…) taught practical things, (…) taught how to socially interact. (…) There’s so many skills that you can learn during your PhD which actually turn you into a more rounded person and a more rounded adult ready for work.”

[Arts and Humanities, Voluntary Sector]
Some graduates found that actually entering employment before their PhD had finished enhanced the quality of their PhD itself.

“I almost saw [my current job] as the finishing school for my PhD because it was about political and environmental governance. (…) The knowledge that I’ve built up in my PhD, I suppose you get the whole theoretical side of things and academic understanding of all those particular issues, but by going into the policy field, I actually got a more practical hands on understanding of those particular issues in a policy environment.”

[Life Sciences, Voluntary Sector]

“I made a conscious choice to come into [public sector] [during my PhD] to find out how government works really behind the scenes. Uhm, only by being inside do you really understand something and you can read all the books that you want but that’s not necessarily how it’s happening.”

[Social Sciences, Public Sector]

Seeking out opportunities also requires a degree of proactivity on PhD graduates’ part, as one participant pointed out.

“It’s just being aware of knowing where to look, when to look, when the general funding rounds would happen so that you know to keep a much more active eye on what’s happening. (…) Knowing when those opportunities may become available to apply for. That’s the key, really.”

[Social Sciences, Public Sector]

Several participants mentioned that expanding the job search to overseas helps to maximise the amount of opportunities available.

“I would definitely encourage PhD students not just to restrict to looking in Northern Ireland and there’s plenty of amazing opportunities if they’re willing to relocate elsewhere.”

[Physical Sciences/Engineering, Voluntary Sector]
Opportunities could also be closer to home than students might think – a number of our participants mentioned how helpful they had found the university’s careers support system, and urged upcoming graduates to make use of it, particularly when it came to CV design.

Awareness of career opportunity challenges

A reoccurring theme within the interviews was the perception that the future career path for recent PhD graduates was not as certain or as stable as it once was. Recent graduates perceive that the competitive labour market presents challenges when looking for work. However with preparation and
awareness of what those challenges might be, they will find they are more than adequately fit to deal with them.

It was notable that almost all of our participants used the Internet as their primary job search tool. Many subscribed to subject-specific mailing lists, both external and internal, as well as broader job-seeking websites such as JobFinder.

“I searched] pretty much exclusively online. Ehm, so I signed up for like…alerts from, ehm, Biosource, I think is a company – a website based in the States and it had a bit of a range of industry and post-doctoral jobs.”

[Life Sciences, Academia]

“I did a lot of outside (…) looking for different jobs, but (…) the portal that was made available for obviously careers through Queens was where this job became, ehm, sort of advertised.”

[Life Sciences, Industry]

“I got like The Times 100 Graduate Employers, so that was a huge reference point for me to go back to. Ehm, websites like Prospects, Milkround, all that sort of thing. For academia, academia.edu sort of messageboard, the SCUDD listings and all that sort of stuff, so list services and things. (…) The Internet was a big one as well, just for researching on offer jobs.”

[Arts and Humanities, Consulting]

Graduates who had left academia spoke about how employers don’t always recognise the value of a PhD, and strongly advised preparing for an interview by making sure ability to fully articulate the transferable skills acquired over that time.

“I tried to bring out [in interviews] the fact that I had collaborated a lot throughout my PhD and that I was well used to talking through problems with an external collaborator and trying to find a solution, and really trying to demonstrate that I had that capability, that even though the PhD is very much working on your own, that you are also working with other people. And even just demonstrating in terms of presentation skills that I got from my PhD, the fact that I presented externally and locally (…) that fact I had to explain my work to someone from a non-technical background, all of those kind of things that I knew were gonna be very relevant no matter what job I was gonna go into, I kind of tried to focus on that.”

[Physical Sciences/Engineering, Voluntary Sector]
“Outside of academia (...) [employers] probably only kind of recognise (...) the skills that you got from the PhD if you kind of tell them what those skills were. (...) Outside of academia, the main way employers see a PhD as being valuable is if you kind of...don’t necessarily focus on the PhD but on the skills that you gained through the PhD.”

[Social Sciences, Public Sector]

Even within the field of academia, there is a need to find ways to stand out, particularly as it becomes increasingly more competitive.

“I think I wrote a very good cover letter and that was something I know my current employers picked up on (...) and probably gave my CV an extra chance. (...) I tailored it precisely to the lab, so on the job posting, the principal investigator wasn’t named. (...) I contacted the university to see who the principal investigator was (...) I addressed my cover letter directly to them. I was the only person that applied for the job that did that (...) and again that shows I was proactive.”

[Life Sciences, Academia]

Most participants noted that many PhD students aren’t aware of, or don’t think of any potential career outside of academia. Those who had moved away from academia expressed how happy they were with their decision, and encouraged upcoming graduates to broaden their horizons and to not just limit themselves to academia, but consider other options as well.

“Don’t sort of see academia as the only option to you post-PhD. (...) For me, I found the experience really rewarding and I’ve really enjoyed it, and I know I’ve definitely made the right transition.”

[Physical Sciences/Engineering, Voluntary Sector]

“Don’t necessarily think that you have to stay in academia (...) the skills that you learn during your PhD, eh, are very transferable, you might not just be aware of that. (...) It is interesting to see (...) who businesses employ and who they’re looking for because although maybe they’re not saying ‘I want somebody with a PhD’, which was my case, but [my employers] needed someone with analytics and were able to critically evaluate, well, that’s the skills you learn [in a PhD].”

[Life Sciences, Industry]
An encouraging find was that virtually all our participants were extremely happy in their current job, with the majority expressing no desire to leave their current place of employment. Interestingly, some even mentioned that they did not wish to advance up the career ladder too quickly, because they wanted to stay as close as possible to the process of research which they loved.

“It’s not necessarily about, you know, climbing up the ladder, it’s very much – I would like to get job satisfaction out of what I do. The further up you go, the more it becomes about business, and that’s fair enough, it is business at the end of the day but I like my wee niche that I have at the minute.”

[Life Sciences, Industry]

“I don’t think I wanna go into management too soon, because I think you wouldn’t be doing as much of the analysis. (...) I think that’s something I don’t want to necessarily rush into too quickly because I actually enjoy that aspect of my work.”

[Physical Sciences/Engineering, Industry]
Discussion

Challenges

Career planning

Our findings suggest that PhD students did not tend to focus on career planning at the early stages of their doctoral study. This is in line with previous research findings (Radden & Sung, 2009; Purcell & Elias, 2005). Our study primarily focused on those who had chosen to move outside of academia and reasons for this choice mainly related to the push factors of disillusionment with academia and lack of opportunities, identified by CFE Research (2014). Doctoral graduates spoke of the competitive environment of academia and pressure as reasons for deciding to move away. Other reasons related to pull factors and they spoke of the challenge and development opportunities available, similar to the findings of Radden and Sung (2009). A key challenge for those choosing to move out of academia was a lack of awareness of other options. In line with previous findings (Jackson, 2007; Radden & Sung, 2009) some also felt that their supervisors would not be supportive of career choices outside of academia. Several participants highlighted the challenge of applying for employment whilst completing their PhD in terms of balancing tasks, echoing findings by Jackson (2007). This also mirrors the difficulties found to be experienced by part-time students (Deem & Brehony, 2000) in terms of balancing research and employment commitments.

Employers’ perceptions

Our findings suggest that doctoral graduates continue to face challenges in terms of overcoming employers’ perceptions of what a PhD graduate can bring to the workplace. Doctoral graduates felt that they had to prove that they had relevant business acumen and that they could work well outside of the academic context, supporting previous research that suggested employers’ concerns over commercial awareness and ability to fit into the work environment (CIHE, 2010; The Rugby Team, 2007). Participants spoke of finding it difficult to articulate their skills in a way that was clearly relevant to employers. As in previous research, they felt they were perceived as being over-qualified and having very specific knowledge that might not be generalisable to other working environments. The importance of work experience for employers has been well-documented and doctoral graduates in our sample also felt that work experience could be of greater value to employers than qualification. Interestingly, one participant who had gained voluntary experience, whilst recognising the importance of this, felt that it was considered less valuable by employers in comparison to paid work experience. In terms of skills gaps, one participant identified that they had limited budget and people management experience, which they felt was detrimental during their job search process.
Adapting to new role

The main challenge reported in relation to adapting to a new role was in terms of the structure of the working environment. Several doctoral graduates noted that the pattern of working hours required some adaptation. Interestingly any initial struggle seemed to turn into a positive experience with an appreciation of the structure and more regular working hours in comparison to the PhD process. Participants also highlighted the difference in adapting to working as a member of a team. Although previous research had identified team working skills as a potential challenge for PhD graduates, our findings provided interesting insight into the challenges doctoral graduates experienced moving into a team environment. Participants spoke of difficulty adapting from the autonomy of a PhD and managing working in a busy team environment, working under closer supervision and participating in regular group meetings.

As with the working day structure, participants reported that they came to enjoy the team environment, suggesting that any initial transition challenges can be overcome and that doctoral graduates are able to adapt to this contrasting working environment.

PhD as preparation for employment

Doctoral graduates working across sectors identified a common range of transferable skills developed through the PhD across disciplines and considered valuable across the employment sectors. The key skills identified were:

- Resilience
- Communication and presentation skills
- Project management
- Working independently
- Research
- Critical thinking

These are in line with previous research, with both employers and doctoral graduates identifying resilience as a key quality developed through the PhD (CFE Research, 2014) and communication skills being highlighted as one of the most relevant skills developed via doctoral study (Jackson, 2007; Innis & Feeney, 2012). Being able to work independently and effectively plan and manage projects have also been identified as key skills by doctoral graduates and employers (Innis & Feeney, 2012; Souter, 2005). Studies across disciplines have also found research and critical thinking skills to be important transferable skills developed through the PhD (CFE Research, 2014; Radden & Sung, 2009). Although
many of the roles didn’t specifically require a PhD, graduates spoke of the relevant experience gained and skills developed that they felt were highly important for their successful transition into employment. They reported that work activities followed a similar pattern to their PhD research in terms of the need to plan, solve problems, communicate and work with others. Some also mentioned the idea of PhD as providing status that had previously been identified by participants in research by CFE Research (2014) and Radden and Sung (2009).

What is needed for a successful transition

The current study aimed to add to the research literature by identifying factors associated with making a successful transition. The key theme in relation to this was the need to be proactive in recognising and taking opportunities. It was interesting that participants across disciplines and regardless of career path, highlighted the need to actively get involved in additional opportunities and activities in order to enhance experience prior to employment, supporting the research that suggests proactivity is related to early career success (De Vos et al., 2009). The importance of practical experience was emphasised, echoing the value of work experience identified by employers in previous studies (CFE Research, 2014; Radden & Sung, 2009; Souter, 2005). Participants also identified the need to be proactive in relation to career management, identifying the need to seek out job opportunities and make use of available career support services. Doctoral graduates highlighted the competitiveness of the current labour market and the need to prepare and be able to effectively articulate their transferable skills in order to compete successfully within the selection process. Some also mentioned the importance of considering alternative and broader career options, with participants who had chosen alternative pathways reporting high levels of satisfaction in their current role.
Recommendations

As an important aim of the project is to learn from the insights gained, some key recommendations for postgraduate researchers and those supporting postgraduate researchers are identified below.

Current postgraduate researchers

Feedback from doctoral graduates suggests they would recommend:

- Actively considering career options and planning relevant development within the period of PhD research
- Seeking and taking opportunities beyond the immediate research project
- Being prepared to clearly articulate the skills gained through completing the PhD
- Aiming to clearly distinguish individual value and set self apart from other candidates
- Considering a range of options including those beyond initial preferences
- Utilising available career support services

Recent doctoral graduates

Analysis of the experiences of and advice from doctoral graduates would suggest the following:

- Being confident in the skills and knowledge gained through the PhD
- Clearly articulating the relevance of skills for the employment context
- Being prepared for the change in work structure and context
- Knowing that the challenges of early transition can progress to enjoyment of a different environment

Career development professionals and university support services

Based on the findings, the following areas of support would be recommend:

- Supporting postgraduate researchers and graduates to consider a range of career options
- Helping postgraduate researchers to identify and clearly articulate their transferable skills
- Working with employers to increase awareness of the value doctoral graduates can bring to diverse employment contexts
- Increasing opportunities for team working, management experience and work experience as part of the doctoral study programme
Conclusion

In conclusion, the findings strongly support those of CFE Research (2014), Innis (2010), Jackson (2007) and Purcell and Elias (2005) in identifying relevant transferable skills and the value of the PhD for a range of career options. In addition, the findings expanded upon this previous data, by providing a more detailed account of recent doctoral graduates’ experience of transition including the challenges and benefits of adapting to a new working environment and highlighting the importance of proactive career planning and development to support successful transition. Unlike most previous research which has focused on graduates over 5 years out of education, exploring experiences of those who have made the transition from PhD to employment within the past 2 years provides enhanced insight into their early experiences, relevance and challenges. As identified in our recommendations, these insights highlight potential learning points for current and recent doctoral graduates, as well as careers and development professionals. Although outside the scope of the current study, further longitudinal in-depth qualitative studies would be valuable in exploring the long-term benefits and challenges facing doctoral graduates in an employment context. With the increasing international mobility of researchers, similar studies exploring international pathways would also be a relevant research direction.
References


Appendix 1: Interview Schedule

- As you were coming to the end of your PhD, did you have any idea of the type of employment that would be available to you, or that you would want to go into?

- Could you tell me a little about that first initial job search upon completing your PhD?
  - Did you encounter any particular challenges when trying to find work? How did you go about overcoming them?

- Do you feel having a PhD was an advantage or a disadvantage for you when trying to find a job? In what way?
  - What do you feel made you stand out to your employer?

- How relevant is your PhD to your current employment?

- Do you feel the skills you developed during your PhD are relevant to your job? If so, could you provide some examples and talk about how?
  - Do you feel your current job environment provides you with opportunities to develop these skills further?
  - What additional skills or experiences would it have been helpful to have developed during your time as a PhD student?

- How did you find adapting to the work environment in your first few weeks of employment after coming from a research background?

- If you could give someone just finishing their PhD now one piece of advice, what would it be?

- What are your future career plans?