An exploratory study of the educational processes of the PhD

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Abstract

There has been a significant increase in the numbers of students undertaking doctoral study over the last 20-30 years. This means that the PhD is no longer solely an elite degree designed to prepare graduates for an academic career. Instead, emphasis has increasingly been placed on the role of the PhD in producing 'advanced knowledge workers' who are expected to make a contribution to the production of knowledge in a knowledge-driven economy. This has led to an increased focus on the educational dimension of the PhD and the educational processes involved in developing students to become researchers in a range of contexts.

However, the educational processes involved in the PhD are complex and differ across higher education systems, institutions and disciplines. They include formal and informal activities and involve a large number of actors with different expectations about the aims and outcomes. This study aims to gain an in-depth understanding of the educational processes of the PhD by exploring the complexity underlying these processes.

The research was based on case studies in six departments. The case studies focused on the PhD processes of the six departments from three disciplines in four higher education institutions in England. Interviews with PhD Programme Directors, supervisors and students were complemented by analysis of institutional and departmental documents. The research was guided by a multi-level framework to examine the institutional, departmental, interpersonal and individual levels, and the inter-relatedness between levels. As such rich narratives provide insight into factors such as the PhD thesis and its influence on the supervisory relationship, formal initiatives such as assessment and coursework, and the Skills Training Programme and its underlying notion of employability.

Three forms of complexity were identified. The first relates to the fact that the educational processes are individualistic in nature, and there is a need to understand the influences of the personal, social, educational and professional domains of the individual students and supervisors independently and collectively in shaping these complex processes. The second underlines the tensions and potential contradictions within and between actors as a result of the interpretation and implementation of these processes across the four levels. The third concerns a tension between the need for these processes to remain individualistic and the pressure for departments and institutions to provide standardised processes for all students.

By identifying and gaining a greater understanding of these complexities, this research contributes to a more comprehensive understanding of the educational processes of the PhD based on grounded empirical evidence. This understanding is important in developments for enhancing the quality of PhD education, and in developing programmes which support students to become researchers in a range of different employment contexts.

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Introduction

The Doctor of Philosophy (PhD) degree represents the highest level of academic qualification in most countries (HEPI, 2010). Over the last decade or so, postgraduate education has become one of the fastest growing sectors in higher education, particularly the numbers of students now undertaking doctoral study (Auriol *et al.*, 2013; Jorgensen, 2014; NSF, 2011). This growth is not confined to developed countries; in fact, it has been even more rapid across developing countries (Chapman and Chien, 2014; Cyranoski *et al.*, 2011; Maslen, 2013).

Importantly, the significant growth in numbers of PhD students globally underlines the fact that the PhD is no longer an elite degree involving a very small number of students who would then go on to pursue an academic career. With many more students undertaking a PhD, emphasis has been placed on how PhD education relates to the labour market and the economy (Brown and Hesketh, 2004; Haynes *et al.*, 2009; Shinton, 2004). The underlying premise of this link is that PhD graduates are to be considered 'advanced knowledge workers' who are needed by a knowledge-driven economy and who should make an important contribution to the production and use of knowledge for economic development (Boud and Lee, 2009; Jorgensen, 2014). In this regard, universities are seen as 'knowledge producers' and agents for economic growth, with the result that both developed and developing countries have started to channel the investment of human capital into the production of PhDs (Nerad, 2006). This increased focus on the PhD has attracted considerable attention with more active and direct involvement from policymakers, higher education researchers and practitioners, as well as stakeholders such as employers (Flint, 2011). More

importantly, the increased focus on the PhD has led to a stronger emphasis on the educational dimension of the PhD, which concerns the ways in which PhD students are prepared and developed to become researchers in a wide range of employment contexts.

This research aims to gain an understanding of the educational processes of the PhD. These processes include the relationship between the student and the supervisor, and the formal and informal activities undertaken in the course of the PhD that shape the development of students and prepare them with the knowledge, skills and capabilities to develop a range of research skills, produce a thesis, and become employed in very different contexts.

However, these educational processes are complex. While the rapid expansion of the PhD has been a global phenomenon, the models and approaches used in PhD education are different across higher education systems. A common distinction in PhD education has been drawn between so-called structured and apprenticeship-based models, also known as course-based and research-dominant models, or the US/North American and British/European models (Cowen, 1997; Green and Powell, 2005; Go8, 2013; Kehm, 2006; Phillips and Pugh, 2005; Teichler, 2014; Tewari, 2012; USNEI, 2008). These different models involve different kinds of educational processes.

However, even within one higher education system, the educational processes are far from uniform across disciplines and higher education institutions (HEIs). They consist of a range of activities which can be formal or informal, spanning different levels and involving actors and stakeholders with different and sometimes conflicting expectations about the purposes and outcomes of the study (Lee and Boud, 2009). This

research aims to develop an in-depth understanding of the educational processes by elucidating the complexity underlying these processes by which PhD students are developed to become researchers.

The research was conducted in the English higher education context, with a focus on the educational processes in PhD programmes within English higher education institutions. Based on case studies of six departments across three disciplines in four HEIs in England, I aimed to explore the educational processes of PhDs by addressing the following research questions:

1) What are the similarities and differences in the educational processes in the PhD across the six case studies?
2) In what ways, and to what extent, do the similarities and differences lead to complexity in the educational processes within and across institutional, departmental, interpersonal and individual levels?
3) What are the forms of complexity in these processes, and in what ways and to what extent does this complexity influence the development of PhD students?

In the literature on the PhD in the UK, most studies have focused on the individual experience of students, the supervisory relationship and the role of disciplines in shaping the development of PhD students (Leonard *et al.*, 2006). A notable gap in the existing body of literature is an elucidation of the complexities in the educational processes involved in developing researchers which takes into account the influences of institutional, departmental, interpersonal and individual levels independently and collectively. A multi-level approach allows aspects that have not been given much attention in the literature – for example, the individual experience of supervisors, the

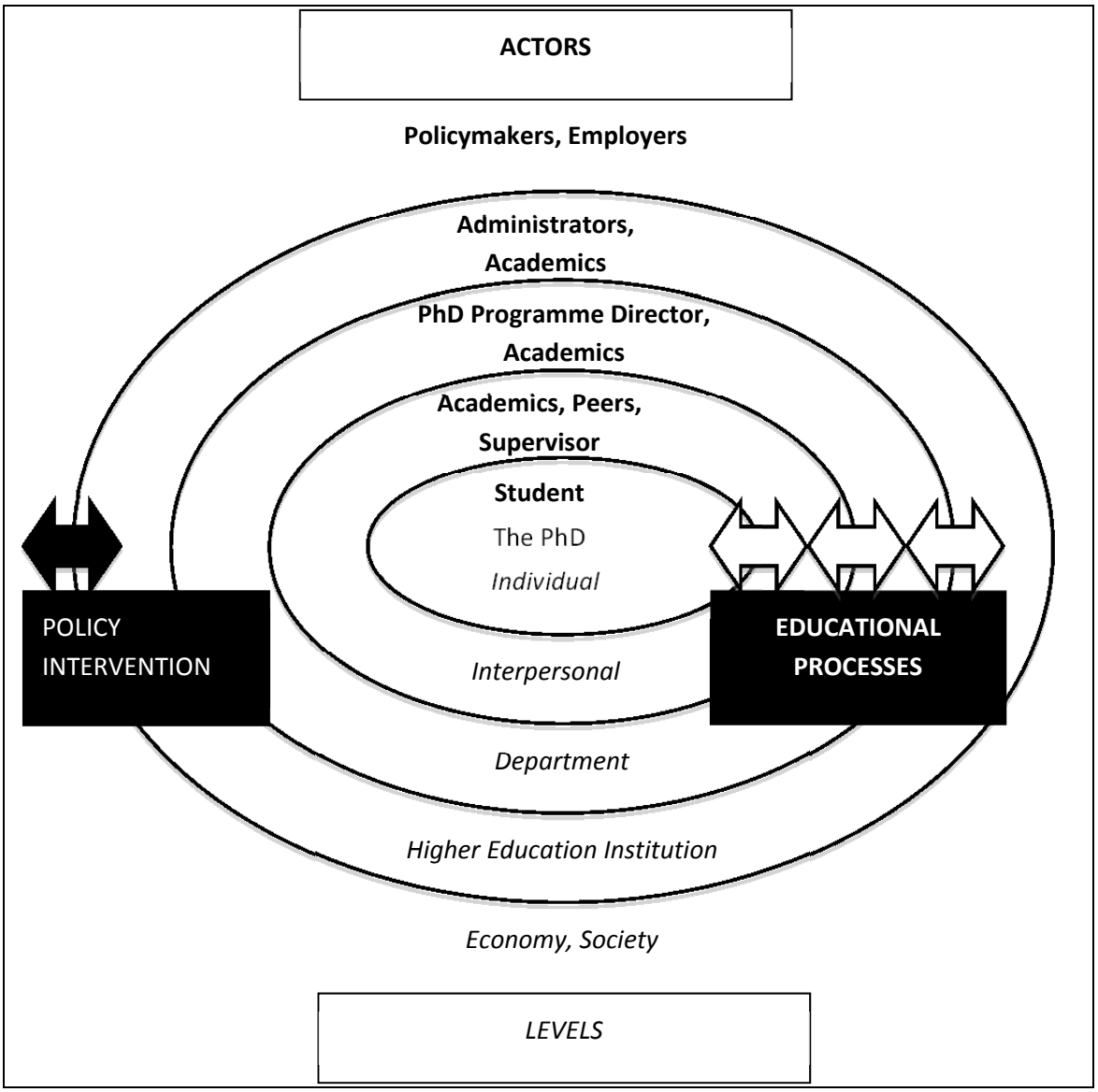
synchronisation or lack of it between students, supervisors and other actors and stakeholders, and the role of departments and HEIs in these processes – to be examined. It also enables the development of insights into the 'local context' in which these educational processes take place, and facilitates an understanding of the practices on the ground from the perspectives of students, supervisors and PhD Programme Directors, in order to complement the macro- and policy-level developments that are shaping PhD education. Importantly, a multi-level approach also provides a systematic framework to examine differences within and between actors at various levels, and to allow potential tensions and contradictions to be explored.

The research questions suggested a multi-level approach and the image of 'onion rings' has been used figuratively as a framework to conceptualise the focus of this study (Figure 1). This metaphor was first used by Bronfenbrenner (1979), and has been elaborated and adapted as a conceptual or analytical framework in a number of studies (see Cole, 1998; James, 2004; Sellman *et al.*, 2002). Specifically in PhD education, McAlpine and Norton (2006) mapped the various 'contexts of influence' concerning doctoral attrition rates, and used this framework to argue for the importance of each level of context. This enabled them to develop a more holistic understanding of the problem of attrition in PhD education.

This conceptual framework helps to operationalise the various levels in which the educational processes can be explored. These include institutional, departmental, interpersonal and individual levels. The framework also helps to identify actors within each level. Using empirical evidence gathered from the six case studies, the conceptual

framework informed this study in exploring the educational processes in the PhD and elucidating their underlying complexities.

Figure 1. The Conceptual Framework



Adapted from: Bronfenbrenner (1979); Cole (1998); James (2004); McAlpine and Norton (2006); and Sellman *et al.* (2002).

The thesis is structured as follows:

Chapter 1 sets the context by examining the wider influences which shape PhD education and underlining the need to understand the educational processes in the PhD. The chapter begins by examining the expansion of PhD education as a global

phenomenon, which, it may be argued, changes the nature of the PhD and has led to the PhD becoming more strongly linked with economic development. This means that the role of the PhD has attracted interest from policymakers in ensuring that it fulfils its expected contribution. In turn, this has led to an increased emphasis on the educational dimension and the quality of these processes in preparing PhD students to become researchers in a wide range of contexts.

Chapter 2 reviews the literature and examines the educational processes in the PhD, beginning with a description of different models of PhD education. This is followed by a review of the literature on the educational processes in the PhD, structured according to the institutional, departmental, interpersonal and individual levels. The chapter concludes by arguing that it is not sufficient to understand the educational processes and to illustrate the complexities by examining the processes at each level independently. Rather, there is a need for a more holistic approach that also examines institutional, departmental, interpersonal and individual levels concurrently and the inter-relatedness across these levels.

Chapter 3 presents the research design and data generation methods and the analytical procedures used to analyse the data. The research design involves a case study approach using semi-structured interviews and documentary analysis. The design includes the criteria for sampling the case studies of six departments from the three fields of chemistry, economics and history across four HEIs in England. The chapter includes an account of how access was gained, the procedures used to generate and analyse the data, and a section on reflexivity and ethical issues encountered in the study.

Chapters 4, 5 and 6 present the findings of the study. Six major themes were identified – thesis, supervision, assessment, coursework, skills and employability.

Chapter 4 presents findings related to the thesis and supervision. The chapter begins by exploring the thesis in the sequence of how HEIs define this output, how departments re-interpret the criteria outlined by their HEI to take into account the norms and cultures of the respective disciplines, and how supervisors and students understood the idea of the thesis. Consequently, the different ideas of the thesis are translated into different forms of activities in the supervision process, given that the primary aim of the supervision process is to support students in conducting their research and producing the thesis. The chapter also examines the conception of the research among supervisors, the perceptions of supervisors and students about useful supervision, as well as the introduction of supervisory teams and the changing model of supervisory relationships, which have shaped the supervision process to become more complex.

Chapter 5 focuses on the efforts for greater formalisation in the PhD, both in formative assessment and coursework. The chapter examines the introduction of more formal assessment during the course of the PhD, how this initiative was carried out across the different levels, and the perceptions and involvement of various actors in this process. The chapter also examines the introduction of more formal educational processes in the PhD. These processes include formal training and coursework, with some departments requiring departmental seminars and workshops to become mandatory for PhD students as a formal part of PhD education. However, the ways in which and the extent to which these formal processes were introduced and carried out differ

significantly; on the one hand these differences illustrate a complex picture of the processes, and on the other hand they have varying implications for the learning and development of the students.

Chapter 6 examines Skills Training Programmes and the greater emphasis on employability, the ways in which HEIs and departments introduced and implemented these, and the perceptions of students. The chapter also presents data on the various informal opportunities used within departments and by supervisors in helping their students to develop broader skills. As the idea of generic and transferable skills relates fundamentally to the notion of employability, this chapter concludes by presenting data on employability from the perspectives of students and how this perspective may differ from other actors and stakeholders.

Chapter 7 discusses the three forms of complexity underlying the educational processes. The discussion of the first form of complexity relates to the fact that the educational processes of the PhD are individualistic in nature. Using the four domains of influence at the individual level enables a more systematic understanding of how individual factors shaped these processes, and identifies potential tensions emerging from individual level factors. The second form of complexity illustrates the tensions and contradictions within and across actors at different levels, as well as potential tensions emerging from the interpretation and implementation of the educational processes across different levels. This relates specifically to how the educational processes are organised as well as the different intended outcomes of these processes as expected by various actors, which may lead to tensions and contradictions and contribute to the complexity of these processes. The third form of complexity relates

to the tensions that emerged from the fact that PhD education and processes are largely individualistic, but recent initiatives have attempted to make these educational processes more standardised to ensure the quality of PhD education. However, there are tensions that emerge from this change and shape the learning and development of PhD students to become more complex.

Chapter 8 discusses the significance of the findings and wider implications for policy, programmes, supervision, and learning and development in PhD education. These implications are not limited to the English context, but make important contributions to the broader debates on PhD education globally. This chapter concludes by suggesting ways in which future research on the educational processes in the PhD can be improved through recognising the limitations of this study.

Chapter 1

PhD Education and the Quest for Quality

This chapter sets the scene for the research by discussing the expansion of the PhD as a global phenomenon and the economic roles associated with the PhD. These developments have attracted external influences and led to a focus on the educational dimension of the PhD in developing students with the knowledge, skills and capabilities to become researchers. Importantly, as the focus on the educational dimension increases, there is a need to ensure quality of educational processes in developing PhD students to become researchers.

1.1 THE EXPANSION OF THE PHD AS A GLOBAL PHENOMENON

Over the past twenty years the numbers of PhD students and graduates have expanded significantly. This expansion is evident in both developed and developing countries, and has become a global phenomenon. The expansion shows no sign of stopping; in fact the reverse is true, as recent figures demonstrate.

For example, the United States (US), which has traditionally been the major producer of PhDs, has increased the number of PhDs awarded from 17,949 in 1966 to 48,802 in 2008 (NSF, 2011). Germany, recognised as the birthplace of the PhD degree, has also seen a clear increase in the number of PhDs awarded in the last four decades, from 10,500 in a year in the mid-1970s to 14,500 in the mid-1980s, rising to about 19,000 in the 1990s and more than 25,000 in the 2000s (Cyranoski *et al.*, 2011; Kehm and Teichler, 1992). In the United Kingdom (UK), the number of PhD degrees awarded has

increased by a factor of one hundred over the years since 1917 when the first PhD was awarded in that country (Simpson, 2009; HESA, 2012). Significantly, the number of students admitted into PhD programmes in the UK increased by 30 percent between 2002 and 2007 (HEPI, 2010), and the number of PhDs awarded increased from 7,500 a year in 1995 to more than 20,000 in 2010 (HESA, 2012).

These figures are replicated across major regions of the developed world. Across the European Union as a whole (including the UK and Germany), it is estimated that there are 600,000 students enrolled in PhD programmes (Byrne *et al.*, 2013), and this region has seen the number of PhDs awarded increase by 50 percent between 2004 and 2011 (Jorgensen, 2014). In the southern hemisphere, Australia produces a significant number of PhDs. Enrolment has increased from 28,000 in 2000 to 47,000 in 2010 (Larkins, 2011), and the number of PhDs awarded in that country grew from 1,200 in 1989 to almost 6,000 in a year two decades later (Dobson, 2012). Across the *Organisation for Economic Co-operation and Development* (OECD) member countries, which are high-income economies and are regarded as developed countries, there has been an increase of 38 percent in the number of PhDs awarded, from 154,000 in 2000 to 213,000 in 2009 (Auriol *et al.*, 2013).

An even more astonishing expansion has taken place across developing countries in producing PhDs. Traditionally regarded as the largest producer of PhDs in the world, the US was overtaken in 2008 by China (Cyranoski *et al.*, 2011), which produced almost 50,000 PhDs in that year alone. During the last three decades China has awarded more than 240,000 PhDs in total, and enrolment has increased at the rate of 24 percent annually (Maslen, 2013; Sharma, 2012).

This phenomenon is repeated across many other developing countries in Asia. Examples include almost 78,000 students enrolled in PhD programmes in India in 2010 (MHRD, 2013), and in 2012, 74,000 in Japan, 60,000 in South Korea, 31,000 in Indonesia, 23,000 in Thailand, and 22,000 in Malaysia (Chapman and Chien, 2014). In the Middle East and North Africa there also has been significant in PhD enrolment. Prior to the Arab Spring, in 2009 Egypt had about 35,000 students enrolled in PhD programmes (Cynaroski *et al.*, 2011), while Iran had almost 11,000 in 2010 (IRPHE, 2011).

Many other developing countries in Africa, Latin American and Eastern Europe have also experienced a significant increase in the proportion of students pursuing a PhD degree. In South Africa the enrolment of PhDs increased by 150 percent between 1996 and 2011 (Sheppard and Cloete, 2014), while Brazil doubled its enrolment between 1999 and 2009 (Maslen, 2013). Poland has also increased its enrolment of PhD students from a mere 2,700 in 1990 to 32,000 in 2008 (Cynaroski *et al.*, 2011), while Eastern European countries such as Croatia, Latvia, Romania and Slovakia doubled their numbers of PhD graduates between 2004 and 2011 (Jorgensen, 2014).

The significant worldwide expansion in numbers of PhDs awarded and students enrolled in PhD programmes underlines the fact that this is a global phenomenon. The PhD is no longer an elite degree undertaken by a minority aspiring to take up an academic position in universities. Rather, the significant expansion in numbers of PhD graduates has changed the role and purpose of the PhD, reflecting its importance to the higher education system, the economy and society at large, but there remains a lack of consideration to the concern for quality in PhD education.

1.2. THE CHANGING ROLES OF THE PHD

The role of the PhD has changed from being solely a form of academic training to having important economic roles for development. There are three related arguments that associate the PhD with these roles.

The first is rooted in the notion of PhD graduates as 'advanced knowledge workers' required by the knowledge-driven economy. This has led many developed and developing countries to channel their investment in human capital into the production of PhDs (Boud and Lee, 2009; Jorgensen, 2014; Nerad, 2006). In this regard, universities are seen as 'knowledge producers' and agents for economic growth, while PhD graduates are 'advanced knowledge workers' who can make an important contribution to the production and use of knowledge. This belief has been clearly expressed in policy documents across the world.

For example, in the UK, the review of postgraduate education, *One Step Beyond* (DBIS, 2010), argued that the training of researchers via PhD study is essential to the development of knowledge from research activities, and this knowledge is critical for tackling major challenges and driving innovation and growth in the public and private sectors of the UK economy. A similar belief has been expressed by the Commission on the Future of Graduate Education in the United States (Wendler *et al.*, 2010) in examining the future of graduate education, including PhDs. PhD education, which makes up a significant proportion of graduate education, is believed to provide students with advanced knowledge and skills which are linked to the future intellectual development of a knowledge economy. Even in developing countries like Malaysia, the economic competitiveness of the economy is believed to depend on the development

of human capital, and the PhD has been identified as the form of training needed to produce the required human capital. Hence, the National Higher Education Strategic Plan of Malaysia aims to have a total of 60,000 PhD graduates in the country by the end of 2023 (MOHE, 2007).

However, the proposition linking the PhD to the knowledge-driven economy has yet to be examined in the wider context of changes in knowledge production and the nature of research. Gibbons and colleagues (1994) argued almost two decades ago for an expansion of the conceptualisation of modes of knowledge. They described two modes of knowledge: Mode 1 knowledge, which is disciplinary and academic in nature; and Mode 2 knowledge, which is trans-disciplinary and application-based (Gibbons *et al*., 1994). This led to an enhanced conceptualisation of knowledge production as no longer confined within 'ivory towers' producing so-called Mode 1 knowledge, but also occurring within other sites leading to Mode 2 knowledge. This change in the conceptualisation of knowledge production to include Mode 2 knowledge has been reflected in suggestions that there has been a growth of 'knowledge industries', an increase in 'knowledge workers' and a proliferation of sites of 'knowledge production' beyond traditional universities. These include, for example, high technology and management consultancy companies, and think-tanks which are also considered to contribute to the production and use of knowledge (Gibbons *et al.*, 1994; Guile, 2001; Harris, 2001; Nowotny *et al.*, 2001). The changes in mode of knowledge production have therefore led to the idea that PhD graduates are 'advanced knowledge workers' who have opportunities to participate and contribute, not only to the body of knowledge in their respective disciplines, but more importantly to the production and

use of knowledge needed for development and growth in a knowledge-driven economy (Boud and Lee, 2009).

The second argument relates to the belief that the PhD has a role in upskilling and training the workforce. This has led to initiatives in many developing countries to expand their higher education system as a way to create the workforce needed for economic development. Thus, many developing countries are 'expanding out' their higher education to increase access (Chapman and Chien, 2014). In turn, this 'expanding out' will require more academics to teach and conduct research in the expanded system. It was a similar rationale that drove the 'expanding out' phenomena in the US in the 1950s and the UK in the 1960s, when their higher education systems expanded from elitist to mass systems (CHE, 1963; Thelin, 2004; Trow, 1974). Currently, the PhD is considered to be a way of producing the greater numbers of academics needed for this purpose, especially in developing countries, and the rapid growth in PhDs awarded and students in PhD programmes across developing countries in Asia, Africa, Latin America, the Middle East and Eastern Europe in the last decade or so has been driven by the perceived needs of expanded higher education systems. The increase in numbers of international students from developing countries pursuing a PhD in developed countries such as the US and UK has also been motivated by the same perceived needs, to develop more academics to cater for the general expansion of higher education in those developing countries.

Moreover, the general expansion of higher education and more students earning a first degree means that a larger number of students will have the ability and necessary credentials to pursue a PhD. This phenomenon is termed 'expanding up' (Chapman

and Chien, 2014), and to some degree this was what Dore (1997) named credential inflation, leading to a demand for higher credentials as a necessity in the labour market. This 'expanding up' has created a demand for higher qualifications such as the PhD, which in turn led to the idea that the PhD has an economic role in upskilling and training the workforce in general.

The third argument relates to the changing career trajectories of PhD graduates. It was commonly accepted that the PhD has traditionally been the training ground to produce 'stewards of the discipline' to replenish scholars in higher education (Golde, 2006), who are capable of producing new knowledge within the domain of a discipline (Park, 2005; Parry, 2007). However, due to the rapid growth of the PhD, the phenomenon of 'expanding up' and the increased demand for advanced knowledge workers by economic sectors outside of academia, the careers of PhD graduates have also diversified. In the UK, it has been estimated that about half of the PhD graduates between 2004 and 2007 pursued a variety of non-academic jobs after completing their PhDs, either by choice or by necessity (Haynes *et al.*, 2009). Similar trends may be observed in other European countries and in the US; although more than 50 percent of PhD graduates stayed in research, in some countries such as the US, Belgium and the Netherlands, only about half of those in research are pursuing a career in academia. A significant percentage of graduates are pursuing a career in research outside of academia (Auriol *et al.*, 2013).

Even among PhD graduates who stay in academia, career trajectories are far from homogenous. In a demographic review of the academic social science community in the UK, Mills and colleagues (2006) categorise disciplines as either 'exporters' or

'importers'. 'Exporter' disciplines, such as Economics, Sociology and Anthropology, tend to produce PhD graduates who are often employed by the 'importer' disciplines, such as Education, and Management and Business Studies. In addition, 'exporter' disciplines also tend to be more 'research-focused', as compared to the 'importer' disciplines which are more practice- and policy-linked. A similar demographic review of academia in the United States further portrayed the diversity of career trajectories among academics and researchers. Jacobs and Frickel (2009) reported that there are certain disciplines, such as law, political science, the physical sciences, sociology and psychology, where a large majority of the researchers in US research universities hold a degree in the same discipline. However, this is not the case in disciplines such as applied health sciences and computer science. About half of the researchers in the latter disciplines do not hold a degree in their chosen field, having 'migrated' from a discipline in which they were trained to the discipline in which they currently work. The diversity of career trajectories even in academia, the migration between disciplines after the PhD and the 'export-import' phenomenon all have implications for the PhD; it may not be sufficient for the PhD to continue its focus on the traditional purpose of producing 'stewards of the discipline' and replenishing disciplinary scholars, as outlined by Golde (2006).

Furthermore, research activities based in the domain of a single discipline have been challenged by the emergence of inter-disciplinarity and multi-disciplinarity (Barry *et al.*, 2008; Brew, 2008; Mittelstrass, 2000; Nowotny *et al.,* 2001). For example, it is becoming the norm for researchers from different disciplines, driven by a common issue or research problem, to come together to conduct multi-disciplinary research with each researcher maintain their disciplinary allegiance. It is also common for

researchers to cross disciplinary boundaries to conduct research in other disciplines, and engage in what is known as inter-disciplinary research (Jacobs and Frickel, 2009; Metz, 2001). Over a longer period, this phenomenon can be described as 'disciplinary migration' (Hopwood *et al.*, 2008; Jacobs and Frickel, 2009). The emergence of concepts such as inter-disciplinarity and multi-disciplinarity challenges the way research is conceptualised within a single discipline, and also highlights the ways in which the research environment has changed and evolved beyond the domain of a single discipline (Mittelstrass, 2000). Importantly, this changing concept of disciplinarity has implications for the PhD, since it continues to be seen as a degree concerned predominantly with the contribution of knowledge through research within the domain of a single discipline.

Moreover, the fact that about half of all PhD graduates are currently pursuing, or are likely to pursue, non-academic careers implies a range of employment opportunities, including sponsoring agencies, businesses, commercial and public organisations and local authorities. The wide range of employment opportunities means that employers need to be considered as stakeholders who have an interest in the PhD (Flint, 2011). However, the importance of employers needs to be considered more carefully in two respects. First, especially in policy discourse, employers tend to be characterised as a homogenous group and representative of the economy, which is a debatable and potentially misleading proposition since it is unlikely that policymakers have taken into account the views and perspectives of all employers in a labour market, or even have a fair representation in consulting different types of employers (Gleeson and Keep, 2004; Pring *et al.*, 2009). Second, the interest of employers in the PhD qualification

may have been in the qualification itself as a signal for entry into a job market, and not necessarily related to the learning and development of the students (Keep, 2009). Regardless of the contentious notion of the importance of employers, changes in the career patterns of PhD graduates have contributed to the emergence of employers and other workplace participants in the discourse about the PhD, and have signalled their perceived economic importance in relation to the PhD. In turn, the views and ideas of these workplace elements concerning the PhD have become increasingly important, particularly to policymakers.

1.3. THE PHD IN POLICYMAKING

As the economic role of the PhD has increased in prominence, the PhD has become a matter of national interest to policymakers, especially in terms of ensuring the PhD helps to fulfil its economic potential (Boud and Lee, 2009; Kehm, 2006). Furthermore, as public monies have been channelled into the development of human capital and the production of knowledge through the PhD (Nerad, 2006), policymakers also have to ensure a certain level of accountability for the money spent for these purposes. However, the importance of the PhD in public policy is not recent, at least in the UK. Interest and emphasis has occurred over several decades, but the policy view of the role and purpose of the PhD has changed more recently.

In the UK, the importance of PhD education in public policy was emphasised as early as the 1960s. In the Robbins Report (CHE, 1963), the PhD was identified as having an important role in 'expanding out' the higher education system, developing students to

participate in intellectual development and filling vacancies in teaching and research within the expanded system. The importance of PhD education was very much about preparing the human resources needed to support the growth of higher education leading to economic development.

The perceived economic importance of PhD education continued to be expressed in two policy-led reviews on postgraduate education in the UK, each with a rather different emphasis and different views about the role and purpose of the PhD. In the Harris Report (HEFCE, 1996), the perceived purpose of the PhD shifted to begin focusing on research activities and the learning and development of researchers in direct relation to the need for economic growth and development. However, there was still a subtle emphasis on the academic domain of research associated with the PhD. These views were presented as follows:

> In the public realm, postgraduate education contributes directly to wealth creation. Postgraduate study remains a principal vehicle for the development of the next generation of some of the best minds of the nation working at the forefront of their subjects and carrying the research of the country forward. It contributes to the creation of intellectual capital for industry and the economy through preparation of qualified people; and it assists in the processes of innovation and technological development through the flow of qualified people into research-related and other knowledge-based employment. It also assists in increasing the stock of knowledge through the work of postgraduate students in the academic and research base, which may in turn contribute to the production of intellectual property of commercial value. It is inconceivable that the UK could compete effectively in the global economy of the future without a thriving postgraduate sector in its higher education system (Harris Report para 3.6).

By contrast, in the latest review on postgraduate education in the UK, *One Step Beyond* (DBIS, 2010), the perceived economic role of postgraduate education has focused almost exclusively on the development of the skills and capabilities of researchers in

contributing to economic growth and development, with no mention of the role of the PhD in preparing researchers for academic research in higher education institutions. This view expressed in *One Step Beyond* is as follows:

> Cutting-edge research conducted by postgraduates in our world-leading research centres contributes significantly to the health of the UK research base. ... The advanced knowledge and capability of postgraduates are highly prized by business and the public sector. The skills of postgraduates, especially researchers, are critical for tackling major business challenges and driving innovation and growth. ... Many employers benefit from postgraduate skills, and not just those in knowledge-intensive industries. Taught postgraduate courses provide people with the skills they need to work in a range of careers and play an important role in translating postgraduate research into practice. Increasingly, postgraduate level continuing professional development is being developed with and for employers and delivered in flexible ways. This model of responsive and tailored postgraduate provision will play an important role in upskilling and re-training the UK workforce (DBIS, 2010, p. 4-5).

The comparison of the three policy-led reviews in the UK on postgraduate education highlights a shift in ideas about the role of the PhD among policymakers. Although the ideas have shifted over the years, it is clear that there has been an explicit interest in and emphasis on the PhD by policymakers in preparing and developing researchers, albeit for seemingly different purposes.

As this interest develops, concerns and criticisms about the existing practices and structures within PhD education have also surfaced. For example, in the UK, the relatively unstructured apprenticeship approach used in the PhD since the degree was introduced almost a century ago has been criticised and associated with problems such as poor supervision, poor student motivation, lack of knowledge among students and unsatisfactory completion rates (Cowen, 1997). Furthermore, policy-led reviews and external bodies in the UK over the last three decades have persistently raised criticisms

about the PhD, specifically concerning the quality of PhD education in preparing and developing researchers:

> The traditional PhD does not always match up to the needs of a career outside research in academia or an industrial research laboratory (TSO, 1993, p. 57).
>
> The PhD provides neither a rigorous enough methodology training for those who go into academia, nor an appropriate initial and continuing professional development for those who go outside (Coate and Leonard, 2002, p. 24, illustrating the view of the Research Councils).
>
> Currently, PhDs do not prepare people adequately for careers in business or academia, as the skills acquired by PhD graduates do not serve their long term needs (HM Treasury, 2002, p. 111).
>
> The level of preparation for PhD students outside academe remains disappointing. In the UK, there may be a deficiency in demand for higher-level skills, but there is also a skills imbalance between the research skills of our doctoral students who do not take up a position in academe and the enterprise skills required by business (Wilson, 2012, p. 64).

In attempts to address some of these criticisms and concerns, initiatives have been introduced – both externally by the Research Councils and other bodies, and internally in HEIs. The aim of these initiatives is mainly to improve the quality of the PhD in ensuring public monies invested in research and the training of PhD students are accountable in producing graduates with the ability to contribute socio-economically. These initiatives include:

- Institutionalising formal and structured provision of research training within PhD programmes to equip PhD students with the knowledge, skills and capabilities for them to undertake research at the level of the PhD, and also to cater for the needs of potential employers, such as formal courses on research skills (CHE, 1963; Coate and Leonard, 2002; Collinson, 1998; TSO, 1993);

- Introducing the development of generic, transferable and employability skills in the course of the PhD (RCUK, 2001), with a specification of core and generic skills by the Research Councils through the *Joint Skills Statement* (JSS), a checklist of the kinds of skills which should be developed during the course of a PhD regardless of discipline. Following the Roberts Report in 2002, funding worth £120 million was allocated to HEIs to implement skills training over the eight-year period between 2002 and 2010 (Wilson, 2012). Since 2010, the JSS has been elaborated to form the *Researcher Development Framework* and has expanded its focus to include all researchers (Vitae, 2010a; 2010b; 2010c);

- Developing doctoral-level descriptors through a national framework of qualifications to provide a shared and common understanding of the expected outcomes for the PhD degree among different stakeholders (QAA, 2001; 2008);

- Encouraging HEIs to develop Graduate Schools, as distinct and centralised entities within institutions, to promote, administer and organise postgraduate education, including PhD education (Denicolo *et al.*, 2010);

- Proposing entrepreneurship training and internship as part of PhD education in certain disciplines, with the intention of exposing PhD students to research and development outside academia, as well as to prepare students who have the intention of pursuing non-academic careers (Wilson, 2012);

- Providing support for PhD students in terms of career guidance and advice, especially for students who intend to pursue non-academic careers by supporting them to develop an awareness of the full range of opportunities

available, and 'to help them articulate how their skills can be applied to non-academic careers' (DBIS, 2010);

- Encouraging HEIs and departments to create a position of Dean of Graduate Studies or dedicated administrators, intended to 'supervise the supervisors' and address problems such as poor quality of supervision, and to oversee postgraduate and PhD programmes (CHE, 1963; QAA, 2013);

- Creating more formal structures to support educational processes – for example, having clearer guidance for supervisors and supervisory teams to supervise PhD students (QAA, 2004; 2013; UKCGE, 1996);

- Initiating a number of interventions to improve time to completion and completion rates, increase the number of students in disciplines and research areas that are perceived to be significant to the economy, as well as improve the satisfaction of PhD students (Boud and Lee, 2009).

A number of these interventions have directly and indirectly influenced the PhD and led to a number of significant changes in the ways in which students are to be prepared and developed in the course of the PhD. Importantly, the underlying concern of these initiatives and interventions is about improving the quality of PhD education.

1.4. THE EDUCATIONAL DIMENSION OF THE PHD

Over the last two decades there has been a greater focus on the educational dimension of the PhD. From a strong and exclusive focus on research as evidenced

through the thesis, there has been a gradual but significant shift to a concern with the preparation and development of PhD students to become researchers. As Roberts (2007) pointed out, what is produced in the PhD is not so much the original knowledge in the thesis; essentially, the student has become the most important consideration. This shift has led to the use of the term 'PhD education' in the literature, implying an explicit focus on the 'educative work' in the form of the activities and relationships involved in developing researchers in the course of a PhD (Boud and Lee, 2009).

This shift to a greater focus on the educational dimension has also been reflected in a change in thinking about the PhD thesis. The previous focus on the thesis as the sole output, as a *magnum opus* expected to have a lasting impact on the discipline, has shifted to a notion of a more pragmatic piece of work that displays the ability of the student to conduct a research project of the scope and size reasonably expected within three to four years in a PhD programme (Park, 2005). This can be succinctly summarised as:

> A PhD is a stepping stone into a research career. All you need to do is to demonstrate your capacity for independent, critical thinking. That is all you need to do. A PhD is three years of solid work, not a Nobel Prize (Mullins and Kiley, 2002, p. 386).

Although this change in thinking about PhD theses continues to emphasise the importance of research in the course of the PhD through the tangible production of a thesis, it also demonstrates the shift to an increasing focus on the educational dimension of the PhD. However, this shift is not entirely straightforward, and it raises a number of questions that challenge the way the PhD degree should be understood, and the ways in which students are developed.

First, the shift means that there is a potential tension between the research work and the thesis on the one hand, and the student in terms of his or her development on the other hand. Is the PhD solely about the production of a thesis or does it also concern the development of research-related knowledge, skills and capabilities in the student? At the same time, as pressures for timely completion have increased, there has also been a tension between producing high quality research and completing the thesis within three to four years (Park, 2007b).

Second, with the growing emphasis on the knowledge-driven economy and changing methods of knowledge production, questions about the research and education components, and how to balance them in the PhD have also emerged. What is the type of knowledge involved in the research at the level of the PhD? How does the knowledge developed from PhD research contribute to the need of the economy? What are the kinds of preparation needed for researchers in the PhD to develop the knowledge, skills and capabilities to contribute effectively in creating Mode 1 and Mode 2 knowledge?

Third, even in regard to the preparation of researchers for academia, the emergence of concepts such as inter-disciplinarity, multi-disciplinarity and disciplinary migration patterns have also raised questions for PhD education. For instance, the trend for 'disciplinary migration' in the UK's academic community of social sciences and US academia highlights the diversity in the research environment and the nature of research activities undertaken by academics, even within academia. Importantly, this trend has implications for PhD education, which suggests the need to consider the priority and emphasis of PhD education, specifically in funding and designing PhD

programmes to prepare and develop new academic researchers who are capable of conducting research within and across a discipline. The demographic review of US research universities reported by Jacobs and Frickel (2009) raised a question: Is it more effective for institutions to hire established scholars whose work crosses disciplinary boundaries or new PhD graduates with cross-disciplinary training to undertake inter-disciplinary or multi-disciplinary research work?' This question suggests that those who are involved in the PhD, specifically participants who have a part to play in determining the content of what is learned, should consider equipping students not only with the skills and capabilities to conduct research in a particular discipline, but also to be able to participate in a changing academic research environment that may require one to cross disciplinary boundaries almost immediately after completing the PhD. More generally, PhD education is also challenged by the need to prepare students who are not only capable of conducting research in a particular discipline; how can students be prepared to conduct inter-disciplinary and multi-disciplinary research through the PhD?

These questions challenge the educational dimension of the PhD in terms of how the learning and development should be understood and carried out, but fundamentally, they are posed with a concern for quality in PhD education.

1.5. THE FOCUS ON QUALITY

Quality in PhD education is fundamental to the development of the PhD degree. The expansion in numbers, the economic roles associated with the PhD, the increased attention on the PhD in public policy and the focus on the educational dimension, are

all essentially about quality in preparing and developing students. However, quality can be a problematic concept without a clear definition (Barnett, 1992; Kristensen, 2010; Pfeffer and Coote, 1991; Sahney *et al.*, 2004). More problematically, as Harvey and Green (1993) postulate, the fact that higher education has a range of stakeholders means that each has a different perspective on quality. However, "[quality] is not a different perspective on the same thing but different perspectives on different things with the same label" (Harvey and Green, 1993, p. 10). Quality can mean different things to different stakeholders. As a concept, quality can also be relative or absolute. Despite conceptual difficulties in pinning down an exact definition for quality, the concept remains a highly important focus in PhD education.

The focus on quality in PhD education has been on the end products of the PhD, namely the graduate and the thesis. Although the focus on the quality of the end products has been more dominant in the discourse of PhD education and has helped us to understand the issue of quality in PhD education, this focus is not without shortcomings. More importantly, however, there has been a lack of focus on the quality of processes, or what Barnett (1992) termed the 'black box' which plays a role in developing the graduate and producing the thesis. Educational processes have not been given much attention, partly due to conceptual difficulties in operationalising quality in these processes and partly due to the fact that these processes are highly complex. Therefore, this study aims to explore the complexities in these processes, and by elucidating these complexities, to give some insights about quality in educational processes in the PhD. In this section I will examine the ways in which quality has been expressed in terms of the end products and their challenges, as well as possible ways to operationalise the concept of quality in educational processes.

Outcomes and level descriptors have been a major initiative used to express and operationalise the concept of quality in higher education, including PhD education. Harvey and Green (1993) suggested that defining fitness for purpose, which in this case constitutes the characteristics of PhD graduates in the form of outcomes, is one of the ways to operationalise the notion of quality. In the European context of higher education there have been initiatives to develop outcomes in the form of qualification descriptors by describing what students will know, understand and be able to do at the end of the PhD (Gonzalez and Wagenaar, 2008; Gonzalez *et al.*, 2008). This regional initiative is spelled out in the qualification framework as follows:

> Qualifications that signify completion of the third cycle are awarded to students who:
>
> 1. have demonstrated a systematic understanding of a field of study and mastery of the skills and methods of research associated with that field;
> 2. have demonstrated the ability to conceive, design, implement and adapt a substantial piece of research with scholarly integrity;
> 3. have made a contribution through original research that extends the frontier of knowledge by developing a substantial body of work, some of which merits national and international refereed publication;
> 4. are capable of critical analysis, evaluation and synthesis of new and complex ideas;
> 5. can communicate with their peers, the larger scholarly community and with society in general about their areas of expertise; and
> 6. can be expected to be able to promote, with academic and professional contexts, technological, social or cultural advancement in a knowledge based society.
>
> (MSTI, 2005, p. 196)

From the regional framework, member countries of the European Higher Education Area were encouraged to develop their own national descriptors. Alongside the intention of ensuring quality by describing the characteristics of PhD graduates, the

regional framework was also intended to create a comparable system to harmonise higher education systems. In the UK, the *Framework for Qualifications of Higher Education Institutions* (QAA, 2001; 2008; 2013) represents this attempt to specify the descriptors for PhD education and outcomes, developed to outline what a PhD graduate should know and be able to do as follows:

> The framework prescribes that the PhD is awarded to students who have demonstrated:
>
> - the creation and interpretation of new knowledge, through original research or other advanced scholarship, of a quality to satisfy peer review, extend the forefront of the discipline, and merit publication
> - a systematic acquisition and understanding of a substantial body of knowledge which is at the forefront of an academic discipline or area of professional service
> - the general ability to conceptualise, design and implement a project for the generation of new knowledge, applications or understanding at the forefront of the discipline, and to adjust the project design in the light of unforeseen problems
> - a detailed understanding of applicable techniques for research and advanced academic enquiry
>
> The framework also specifies that the holders of the qualification will be able to:
>
> - make informed judgements on complex issues in specialist fields, often in the absence of complete data, and be able to communicate their ideas and conclusions clearly and effectively to specialist and non-specialist audiences
> - continue to undertake pure and/or applied research and development at an advanced level, contributing substantially to the development of new techniques, ideas or approaches
>
> Furthermore, the holders of the qualification are stipulated to:
>
> - have the qualities and transferable skills necessary for employment requiring the exercise of personal responsibility and largely autonomous initiative in complex and unpredictable situations, in professional or equivalent environments
>
> (QAA, 2008, p. 23)

The regional and national qualification frameworks are attempts to operationalise the quality of PhD education by articulating the characteristics of the product, specifically in terms of the knowledge, skills and capabilities that are expected in a PhD graduate at the end of the educational process (Adam, 2004; Huba *et al.*, 2006). The use of outcomes has become an important 'initial point of contact' in assessing the quality of PhDs, influenced by the managerial principles of predictability, consistency and standardisation (Avis, 2000; Jackson, 2000; Wolf, 1995). These managerial principles are particularly important given that any PhD has a diverse group of stakeholders. Furthermore, by describing the outcomes, the aim was to make higher education more accountable for the public money, and to make it more responsive in catering for the learning of students in the context of the needs of the economy and society (Barnett, 1994; Craswell, 2007; Scott, 1995). It is also believed that outcomes can provide a more transparent, focused and rigorous framework for assessment and quality assurance (Otter, 1992; Wolf, 1995), as well as increased transparency and comparability of standards (Adam, 2004).

However, although outcomes as a way to articulate quality have their advantages, the way in which they were used can be problematic. It is argued that the use of outcomes disassociates the processes of learning and development, whereby outcomes only focus on the 'what' and not the 'how'. The disassociation of the 'what' and the 'how' can be problematic as these are the two essential and inter-related ingredients in understanding education (Marton and Ramsden, 1988). By turning the focus towards outcomes, the educational processes will be less emphasised, thereby implying a diminished need to consider inputs such as the student, the supervisor, support, and

the environment of the institution and department (Adam, 2004; Young, 1995) and leaving the consideration of the graduate until the end of the process.

Furthermore, the use of outcomes at the level of the PhD can be much more problematic compared to other levels in the qualification framework of higher education. The dominant component of the PhD is research, which, unlike other levels of higher education, is highly individual and not easily credit-rated into modules and courses (Byrne *et al.*, 2013; Denicolo and Park, 2010). As such, the outcomes may be more challenging to operationalise, and it is likely to be difficult to match them to the many formal and informal educational processes involved in developing graduates in a PhD where research and the production of a thesis are the primary activities. In addition, understanding and ideas about the specification of outcomes and descriptors, as demonstrated at other levels of education, are found to vary across the stakeholders and actors involved – for example, across policymakers, employers, students and academics, and also across disciplines (Clegg and Ashworth, 2004; Drew, 1998; Ertl *et al.*, 2009; Otter, 1992; Otter, 1995). Despite these shortcomings, the use of outcomes and level descriptors in qualification frameworks has become a norm of PhD education, at least in the UK and most European countries.

The focus on the quality of the end product of the PhD also concerns the quality of the research work produced, which is typically codified in the PhD thesis. However, there have been concerns raised about the quality of the research conducted in the PhD. The Higher Education Commission in the UK commented that:

> Much of the current debate around quality is focused on ensuring robust procedural checks rather than a judgement of the quality of the research produced. … We need to be systematically benchmarking our degrees

> against the PhDs awarded by leading institutions in competitor nations (HEC, 2012, p. 72).

Faced with an absence of evidence about quality of the research work produced in the PhD, the Commission proposed the strategy of benchmarking to address quality. In this regard, the concept of quality becomes relative, whereas the concept of quality in the articulation of outcomes and level descriptors is absolute. The concept of quality through benchmarking focuses on the notion of exceptional standards in a piece of research work when compared to other works (Harvey and Green, 1993; Sahney *et al.*, 2004). However, the proposal by the Commission on benchmarking highlighted the difficulty of understanding the quality of PhD research adequately without sufficient empirical evidence. This difficulty may be due to the nature of research activities that cannot be measured in an objective manner through citation counts, publication in journal articles or impact (HEC, 2012). Nevertheless, it remains important to understand the quality of research work, and the lack of understanding does have implications for the broader understanding of quality in PhD education, where research is an important component.

The discussion of outcomes and the proposal of benchmarking research work bring together the two components of PhD education on the subject of quality. The former focuses on the graduate and his or her characteristics, while the latter focuses on the work produced in the PhD. However, in thinking about quality, there are three essential constituents: inputs, processes and outputs (Sahney *et al.*, 2004). The discussion so far has focused on the outputs in the form of graduates and research work, but the inputs and processes have not been given much attention.

The educational processes are an important part of ensuring quality. Barnett (1992) described the processes as a 'black box' that is situated between the entry and completion of education. Peters (2010) defined educational processes as the formal and informal activities undertaken to support the learning and development of students, and Barnett (1992) explained that these processes are a collection of intentional and unintentional happenings oriented towards changing and modifying the student in various ways. However, if the educational processes have an important role in shaping the output or the end-product, either the graduate or their research work, in what ways can quality be assured in these processes?

It is challenging to conceptualise quality in educational processes. What exactly should be considered to be quality in these processes? There are many activities – formal and informal as well as intentional and unintentional – in these educational processes. There are also many actors who participate in these activities across many levels, as well as stakeholders with differing expectations (Lee and Boud, 2009). However, one of the ways to operationalise the notion of quality in educational processes, or examine the 'black box', entails examining a number of indicators, as Barnett (1992) proposed: the ethos of the institution, the character of the interpersonal relationships between and across academic staff and students, at different levels and in different departments, as well as the preparedness of individuals to reflect on and be self-critical about what they are doing. This suggestion from Barnett (1992) reflects the approach of this study in taking a multi-level view and examining the different levels at which educational processes in the PhD take place (see Figure 1, p. 5).

Although the concern about quality of PhD education remained essential, it is also clear that the concept of quality can be problematic as it means different things to different stakeholders and it may refer to the inputs, outputs or processes. Therefore, the concept of quality of the processes can be operationalised in considering the consistency and effectiveness of these processes (Harvey and Green, 1993). The concept of consistency focuses on the processes and the extent to which these processes continue to show the characteristics that were previously shown. The concept of effectiveness relates to the extent to which the processes achieve the intended or expected aim. Hence, this research focuses on examining the processes in the PhD, and through elucidating the complexities and considering the consistency and effectiveness of these processes, intends to contribute with empirical evidence to the broader discussion about quality of PhD education in developing future researchers.

1.6. SUMMARY

Over the last decades, the PhD has developed and evolved significantly. The expansion of the PhD has become a global phenomenon, not only in developed countries but even more so in developing countries. The emergence of knowledge-driven economies has further shaped the importance of PhD programmes, not only to higher education and the academic community but also to the economy and in public policy. Subsequently, this has led to a focus on the educational dimensions of the PhD; importantly, the fundamental point about PhD education is the concern for quality particularly the educational processes in developing PhD students to become researchers. However, the concern for quality of the educational processes requires an

in-depth understanding of the formal and informal activities supported by grounded empirical evidence. Thus, the main focus of this research is set to explore the educational processes of the PhD.

Chapter 2

The Educational Processes of a PhD

This chapter examines the educational processes of a PhD in terms of what we know from the literature, to help in identifying areas that require further examination. The understanding of these processes is important as a form of prerequisite knowledge for this study. However, prior to examining these processes, first there is a need to examine the models of PhD education, given the fact that the model used in PhD education determines the structure of the programme, and in turn the structure determines the educational processes. Having explored the different models of PhD education, the chapter proceeds to examine the educational processes. This examination is divided into four levels as outlined in the conceptual framework. The last section will conclude by arguing in favour of the need for a multi-level perspective to understand the educational processes of a PhD.

2.1. CONVERGING MODELS OF PHD EDUCATION

Since its introduction, the PhD degree has evolved significantly and the variation in different approaches has multiplied. The idea of a PhD degree originated from Germany in the nineteenth century, developed by Wilhelm von Humboldt. The degree was awarded to students who had contributed to the body of knowledge by undertaking original research that was written up in a substantial thesis and defended successfully (Cowen, 1997; Go8, 2013). The PhD was fundamentally guided by the Humboldtian principles, which emphasise 'unity of research and teaching', 'solitude

and freedom', and 'community of teachers and students' (Teichler, 2014). However, since then, there has been such rapid evolution in the PhD that it is almost impossible to pin down an overarching model used in PhD education. However, the contrast between the German model and the US model has often been used as a starting point to understand the evolution and development of the different models (Teichler, 2014).

The German model, more commonly known as the European model, typically refers to the individualised apprenticeship approach of learning to become a researcher under the supervision of a master. When the PhD degree was introduced in the UK the British model of PhD education continued as a relatively unstructured apprenticeship, enabling a novice scholar to make a contribution of knowledge under the tutelage of an established scholar (Cowen, 1997). The supervisory relationship has remained the central feature of this model. Although this model focuses largely on a research project to develop the disciplinary knowledge and skills that are evidenced through the thesis, in recent years, there has been additional coursework introduced across most European countries, including the UK, to develop generic and transferable skills in students to complement their learning of disciplinary knowledge and skills (Jorgensen, 2013). Furthermore, it is now also more common for students to be supervised by a team of two or more supervisors instead of a single supervisor; indeed, in the case of the UK, the Quality Assurance Agency has recommended the use of a supervisory team to ensure quality in PhD education (QAA, 2004). Despite these changes, the British model of PhD education has remained relatively unstructured, revolving around the supervisory relationship as its major characteristic.

Conversely, the US model, more commonly known as the North American model, typically adopts an approach that is highly institutionalised with structured programmes. This model has a greater focus on the coursework component in the first two years, aiming to develop disciplinary knowledge and skills in students in a particular subject area. The taught curriculum is typically regarded as the equivalent of a Masters degree in the British/European model, but the US/North American model has integrated taught elements to become a part of the PhD (Kyvik, 2014). Having completed the coursework element, students are then required to pass an examination, either oral, written or both, which is commonly known as the Qualifying Examination, before they proceed to begin conducting research under the supervision of a panel of advisors led by the principal supervisor (Tewari, 2012; USNEI, 2008).

Although the US/North American and British/European models are distinctly different, developments in the last decade or so have shown some convergences between them. For example, in the UK and the rest of Europe there have been attempts to reorganise PhD programmes to make them more structured, formalised and institutionalised. The recommendation to use a supervisory team instead of relying on a single supervisor in the UK was among the examples of formalisation (QAA, 2004), moving away from the concept of 'secret garden' between a student and a supervisor without external scrutiny (Park, 2005). Currently there are new PhD programmes in Germany which introduce a committee of three advisors with equal power, not dominated or led by a principal supervisor (MacLachlan, 2014); these programmes illustrate a shift away from the dominance of a single supervisor in the traditional model and even beyond a panel of advisors. In addition, the introduction of formal training in generic and transferable skills across PhD programmes in the UK and Europe (Jorgensen, 2013), as well as

recent initiatives from the Doctoral Training Centres (also known as Centres of Doctoral Training) in the UK (EPSRC, 2013), which suggest an additional year of technical, transferable and research training before students begin their PhD research work, have also demonstrated a blurring of the distinction between unstructured and structured models of PhD education.

Recognising a PhD model is important, since the model frames the structure of PhD programmes. In the UK, although the PhD has traditionally followed an unstructured apprenticeship model, convergence and mutual influence from other models have led the British model to become more formalised and institutionalised than it was before (Park, 2007b). Consequently, these structures have also influenced and shaped the educational processes of a PhD; this will be examined in the next section.

2.2. THE PROCESSES ACROSS LEVELS

The educational processes are the formal and informal activities which prepare and develop PhD students to produce a thesis and become researchers. The main process is the supervisory relationship between a student and their supervisor, or more commonly now, a supervisory team. Apart from the supervisory relationship, there are formal processes such as seminars, workshops and courses that are intended to help students to develop their knowledge, skills and capabilities. However, there are also informal processes and unintentional activities that take place within and across the HEI, in departments and in interpersonal settings such as in laboratories, research groups or student-led activities, which in one way or another shape the student to become a researcher (Barnett, 1992; Cumming, 2009; Hopwood, 2010). In addition,

these formal and informal educational processes do not only involve the student and the supervisor(s), but also a range of other actors – including, for instance, other academics and peers, who may play direct or indirect roles and influence the educational processes of a PhD (Barnacle and Mewburn, 2010; Lee and Boud, 2009; Pilbeam *et al.*, 2013). From published descriptions of educational processes, it is clear that these processes are highly complex, as Lee and Boud (2009) summarise:

> PhD education is a complex social field consisting of an interconnected array of different kinds of activities at different levels of abstraction, with often conflicting purposes and with varying expectations of outcome (Lee and Boud, 2009, p.12).

Recognising that the educational processes of a PhD are complex, I chose a systematic way to examine what we know about these processes and identify the gaps within the literature using the conceptual framework (see Figure 1). Subsequent sections will examine these processes in PhD education across the institutional, departmental, interpersonal and individual levels.

Institutional Level

The focus in the literature on educational processes at the institutional level is relatively recent, having only come about as PhD education became more formalised and institutionalised with stronger external influences. Traditionally, the focus of the educational processes was dominated by practices and activities at the departmental level and between the individual supervisor and the student (Park, 2007b). However, the emphasis and focus in the literature has begun to change as HEIs developed a stronger and more explicit influence on the educational processes.

The understanding of the role of HEIs in influencing educational processes is important, as HEIs are strategically located at a crucial junction which connects PhD programmes and external stakeholders such as policymakers. Many policy ideas and interventions to improve PhD education have been implemented through HEIs. From a policy implementation perspective, HEIs and the academics and administrators at this particular level have to assume the role which Lipsky (1971) described as 'street-level bureaucrats', whereby they are expected to understand and interpret policy ideas and interventions and to re-structure and implement accordingly in their respective institutions (Hill, 2003). However, despite the importance of the institutional factor, this level is claimed to be relatively under-researched in the PhD education literature, and not enough attention has been given to the role and types of HEIs in research about PhD education. The claim of under-research was based on a systematic review of literature about the learning experience of doing a PhD in the UK:

> [Out of 120 studies], approximately half of the studies did not say anything about the nature of the universities where research was conducted. Of those that did, studies in Russell Group universities were under-represented [with 17 studies], given that they teach the majority of doctoral students. … [There is a lack of systematic comparison where] sixteen studies focused on a combination of Russell Group and post-1992 universities. However, while these studies drew their research sample from both types of institution, they do not distinguish their data to compare and contrast students' experiences in the two types of universities (Leonard *et al.*, 2006, p. 25).

Nevertheless, from the literature, we can still learn a number of important points about the role of HEIs in influencing the educational processes. These include: the role of HEIs in providing structure, ensuring quality, and facilitating the environment to support PhD programmes.

First and foremost, it is essential to recognise that every HEI in the UK is autonomous. This is despite the fact that higher education in the UK is considered much more centralised, and government and policymakers are heavily and almost directly involved in regulating part of the higher education sector, as compared to other systems in the US, Australia and some European countries (Coate and Leonard, 2002; Pole, 2000). Every HEI has to design and organise its own PhD programme, develop institutional criteria to admit students, and introduce institution-specific rules to govern its PhD programme and institutional regulations to examine PhD theses (Simpson, 2009).

Consequently, this institutional autonomy has led to some diversity in PhD education across HEIs. In the 1980s there were a variety of ways in which university regulations were used to define and govern PhD programmes (Park, 2007a), and a similar trend continued to be observed in the 1990s. A study conducted by Tinkler and Jackson (2000) using institutional documents gathered from twenty HEIs in the UK found that while there was consistency across HEIs on the 'key criteria' such as original contributions to knowledge, there was also divergence on 'peripheral criteria' such as the requirement of students to demonstrate competencies in relation to the methodologies used. Furthermore, the emphasis on these criteria and the ways in which institutions described and clarified them were also found to vary considerably.

However, while HEIs continue to have autonomy over their PhD programmes, there has been a lack of empirical evidence to illustrate how this autonomy has changed in recent years, particularly following initiatives at the regional and national levels to specify outcomes and level descriptors for the PhD. In Section 1.5 I outlined the level descriptors used to specify what is expected of a PhD graduate at the European level,

as well as the more elaborate descriptors used in the Qualifications Framework in the UK. Both descriptors are policy instruments that are essentially generic, using a 'one-size-fits-all' structure, and therefore they are open to various interpretations at the institutional level as long as the criteria, regulations and rules remain within the parameter of the descriptors. However, importantly, there has been limited evidence to show, for instance, how institution regulations about the PhD have changed to remain in line with these policy instruments, and how HEIs, academics and administrators interpret the descriptors and translate them into outcomes for their PhD programmes which also take departmental and disciplinary characteristics into account. It is likely that in the process of re-interpretation, the ideas conceptualised at policy and institutional levels may differ and the differences might create mismatches. Furthermore, different ideas at the institutional level may cascade down to educational processes at the departmental, interpersonal and individual levels, and this may further lead to different outcomes than were originally envisioned at the policy level.

The autonomy of HEIs in PhD education is further reflected in the ways in which the idea of a Graduate School was picked up in HEIs across the country. In a recent survey, 76 percent of HEIs in the UK reported that they have at least one Graduate School (Denicolo *et al.*, 2010). The Graduate School was a policy idea recommended for HEIs, instructing them to set up an entity in the institution devoted to promoting, administering and organising postgraduate education. Specifically, the entity is aimed at improving the quality of postgraduate education and the student experience, sharing good practice in supervision, and managing and monitoring generic skills training programmes. In some HEIs the Graduate School also has responsibility for

quality assurance and monitoring of student progress (Denicolo *et al.*, 2010). Fundamentally, the Graduate School model in the UK is different from that in US HEIs, where the school also focuses on disciplinary knowledge and the taught curriculum.

Apart from the fact that not all HEIs have taken on board the idea of setting up a Graduate School, there has also been more than one way in which this entity has been established in HEIs, which again illustrates the autonomy of HEIs. There are HEIs that have set up an individual Graduate School in each faculty, but the dominant model is to have an institution-wide entity – a centralised Graduate School for the university (Denicolo *et al.*, 2010). The flexibility about whether to establish a Graduate School, and the diverse ways in which to do so, have also demonstrated the re-interpretation and implementation of policy ideas by 'street-level bureaucrats' in HEIs, as well as the inter-relatedness between the policy and institutional levels in influencing postgraduate education, including PhD education.

However, although the survey gave an overview about developments concerning PhD education at the institutional level, there remains a need for further insight. The empirical evidence so far has relied on self-report surveys from HEIs, which have helped us to understand the situation across HEIs, but crucially there is a need to understand the influence of Graduate Schools on PhD education, and the extent to which these entities have shaped and influenced educational processes. In addition, it is also crucial to understand how 'street-level bureaucrats' at the departmental and programme levels understand the institutional entity, and how Graduate Schools support student development and promote good practice among supervisors from the perspectives of both students and academics. These insights are important to help us

develop a more in-depth knowledge about the role of HEIs to support PhD education by providing a structure through Graduate Schools.

To partly address the lack of detailed understanding about how institutional entities influence educational processes, there have been a number of studies illustrating the role of HEIs in influencing educational processes, and the ways and conditions in which a positive influence and intervention can be put in place.

The role of HEIs is not only confined to specifying the criteria for examining the thesis or the outcomes and descriptors for the programme; importantly, HEIs also have a role in providing and organising educational processes to support the learning and development of PhD students. In examining the research culture across two HEIs in the UK, Deem and Brehony (2000) outlined the characteristic of each HEI and examined how the institution may influence the educational processes of a PhD. Although the study was only based on a comparison of two HEIs, they found that in the HEI with more full-time and home-domiciled students who were keen to pursue academic careers, where departments had more active researchers and which ranked higher in terms of research ranking, PhD students were able to access the research culture with less difficulty in comparison with their peers in the other HEI. This study did not only highlight the role of HEIs; it also clearly outlined the conditions that HEIs should put in place which may help their students to develop more effectively in becoming researchers. These conditions relate to the demographics of students and academics, the environment for research, and importantly, the inter-related influences of institutional, departmental, interpersonal and individual factors on educational processes.

A more recent study reaffirmed the important role of HEIs in influencing the educational processes of a PhD. The study aimed to examine the quality of research environments across HEIs in Europe by using survey questionnaires followed by focus group discussions. Based on the findings, Byrne and colleagues (2013) argued that the increase in the number of doctoral schools across HEIs in Europe (equivalent to Graduate Schools in the UK, focusing on PhD students) signalled a strong intention within HEIs to move PhD education away from a highly individualised apprenticeship model, and for students to be integrated into the research environment of the HEIs rather than solely participating in the activities of their supervisor. They further argued that for students to better integrate into the research environment, it was the institution's responsibility to put in place structures to improve the following aspects: individual progression of students, net research time, completion rate, transferable skills, career tracking, dissemination of research results, professional development of researchers, and progress of the research project. These findings not only illustrated the important role of HEIs in influencing the educational processes of the PhD; they also outlined a more detailed set of indicators than the three factors found by Deem and Brehony (2000) which HEIs can use to improve the organisation of educational processes.

Furthermore, the role of HEIs in influencing educational processes may include putting in place procedures that have a clearer structure and purpose. This is particularly true in HEIs where PhD programmes have continued to be relatively unstructured. Hence, an HEI can proactively incorporate courses and formal training, or more drastically, it may re-organise the structures and regulations of its PhD programmes to provide more effective educational processes. Jamieson and Naidoo (2007) demonstrated an

initiative introduced by an HEI in the UK which incorporated elements of professional doctorates into its PhD programmes. To enable this initiative to take place, the HEI reformed the regulations governing its PhD programmes to permit PhD students to carry out coursework that was offered by other doctoral programmes. Although only based on a single HEI, this case study highlights an initiative at the institutional level to provide structured courses for PhD students, and importantly, demonstrates the explicit role an HEI can take in shaping the educational processes in its PhD programmes.

To summarise, it is clear that HEIs have significant roles in influencing the educational processes of a PhD. However, institutional factors remain relatively under-researched in the PhD education literature from a number of perspectives. First, there has been a lack of focus on different types of HEIs. Particularly in the UK higher education system, there are many different types of HEIs; some are more research-driven and others are more teaching-driven. It may be expected that the role of HEIs and the extent to which an HEI may attempt to influence and improve the educational processes depends largely on the type of HEI and the nature of its student population.

Second, in the UK, the introduction of the Skills Training Programme has been a major intervention to improve the quality of PhD education by developing generic and transferable skills among students. Through the Research Councils, a total of £120 million was allocated to organise this programme across HEIs between 2002 and 2010 (Wilson, 2012). Interestingly, while an independent review commissioned by the Research Councils reported a range of approaches and mechanisms used in various HEIs to implement this initiative, there has also been a great amount of 're-inventing

the wheel' and a lack of avenues for sharing best practice (RCUK, 2010). In other words, apart from an independent review attempting to assess the impact and effectiveness of the money spent on this initiative, there is very little empirical evidence to demonstrate how HEIs approached the initiative and the unique mechanisms to implement such training across HEIs. Furthermore, there is also a lack of insights into how HEIs have played a part in encouraging actors within institutions to participate and make use of the training, as well as the challenges of incorporating this programme into the educational processes of a PhD.

In summary, while the role of HEIs in specifying the examination criteria for theses and developing outcomes and descriptors of PhD programmes is recognised in the literature, there remains room for further understanding about the role and influence of HEIs on activities and educational processes. Specifically, there is a need for empirical evidence to help us understand the role of HEIs in shaping educational processes, the mechanisms used in the re-shaping process, and the extent to which HEIs encourage the participation of other actors within the institution in re-organising and re-shaping processes as part of the re-interpretation and implementation of policy ideas. The different types of HEI that have significant groups of PhD students in the UK should also be taken into account to illustrate and help us understand the institutional factors involved in shaping the educational processes of a PhD. The next section will focus on examining the educational processes of a PhD at the departmental level.

Departmental Level

Disciplinarity has been identified as a major influencing factor in the literature of PhD education. The role of disciplinarity in PhD education may not be surprising, given the fact that the PhD has remained a form of advanced learning in the domain of a discipline, and PhD programmes are commonly structured according to the boundaries of disciplinarity. However, to attribute differences in the educational processes and the learning experience of PhD students solely to disciplinarity may be an over-simplification (Pearson, 2005). Furthermore, the concept of discipline and the boundaries used to define a discipline can also be conceptually problematic (Becher and Trowler, 2001; Delamont *et al.*, 2000). Thus, acknowledging the importance of disciplinarity in understanding PhD education and also taking into account the limitations and problems associated with the concept of disciplinarity, this study chooses to focus on the department as the next level to focus on below the institutional level.

Disciplinary differences have traditionally been assumed to be the most significant factor in explaining variation in PhD education (Pearson, 2005). In almost every study that has examined the PhD, in the UK or elsewhere around the world, has taken into consideration the influence of disciplinarity (Barnes *et al*., 2012; Becher, 1993; Chiang, 2003; Delamont *et al.*, 2000; Parry, 2007; Parry *et al*., 1997), either in a broad or a narrow comparison. For example, a broad comparison examines the different experiences of PhD students in the sciences, who are primarily members of a research group working on research problems common to the group in a laboratory, as compared to PhD students in social sciences and humanities, who may have a more

solitary experience (Cumming, 2009; Parry *et al*., 1997). Conversely, a narrow comparison focuses on the differences across specific disciplines; these differences can be within and across the sciences, social sciences and humanities.

Apart from the fact that PhD programmes are structured according to the boundaries of disciplinarity, PhD education has also been considered as a form of socialisation for students to become disciplinary scholars and researchers. Studies have focused on how the socialisation process takes place and compared differences in socialisation processes across disciplines. For example, Delamont and colleagues (Delamont *et al.*, 2000) illustrate the different ways in which socialisation took place through PhD education across different disciplines. This study drew on a large set of empirical evidence gathered from interviews with 286 PhD students, supervisors and departmental heads across twenty academic departments in the UK. The interviews were further supplemented by observations in research laboratories, seminars, meetings and workstations used by the students. Using specific examples of social anthropology, laboratory sciences and artificial intelligence, this study demonstrates a variety of learning and developmental activities specific to each discipline as part of the socialisation process of earning a PhD. For instance, in the field of social anthropology, the 'fieldwork' is not merely a research method, but also a distinctive approach to 'enculturate', and a necessary and sufficient *rite de passage* for the student to become part of the community of researchers in social anthropology. Similarly, 'bench experiments' are not only a research method for those in the laboratory sciences, but "an absolute requirement of competent membership of the disciplinary culture" (p. 175). In similar vein, the construction of computer models and simulations in the field of artificial intelligence illustrates the distinctive learning and

developmental activity of the discipline, which aims to socialise and enculturate PhD students into the discipline. Thus, through the elaborated accounts of the three disciplines, the study highlighted the variety of ways in which PhD education as a form of socialisation sought to enculturate and socialise PhD students to become disciplinary researchers, and reaffirmed the importance of disciplinarity as a major factor of influence on the educational processes of the PhD.

Building on the work of Delamont and colleagues, Parry (2007) also emphasised PhD education as a form of socialisation into the culture of a discipline. This claim was backed with further empirical evidence gathered from interviewing more than 240 academics and students across a broad disciplinary setting of the sciences, social sciences and humanities within three Australian HEIs, where the model of PhD education centred around the supervisory relationship. The findings illustrate how supervision and the social setting of PhD education played a part in facilitating the induction of students into a particular discipline, as well as the nature of disciplinary 'know-how' and how students developed this form of know-how through both formal and informal modes of learning. Apart from emphasising the important role of disciplinarity, the study also highlights interpersonal-level influences on the development of PhD education, and suggests a degree of inter-relatedness across different levels.

In addition, Parry (2007) also examined the influence of disciplinarity based on an analysis of the writing conventions of twenty-six successful PhD theses across different disciplines. The findings illuminated disciplinary conventions, traditions and norms that underpinned the socialisation process of students through the PhD. However, the

findings and claims of disciplinary-specific characteristics in the theses need to be considered more carefully in providing a fair and representative picture, given that the findings and claims are made based on a relatively small sample of twenty-six theses across multiple disciplines. Nonetheless, the study by Parry (2007) demonstrated that as a way to understand PhD education, more attention is needed to understand the culture and influence of disciplinarity on educational processes and output in the form of a thesis.

However, while these studies demonstrate the significant influence of disciplinarity in PhD education, there is a need to consider the influence of disciplinarity within the current context of PhD education. Given that the study by Delamont and colleagues (2000) was carried out in the 1990s and Parry's (2007) work in the mid-2000s, PhD education has changed in many ways since then and one of the current developments is the perceived economic role of the PhD beyond merely developing disciplinary researchers. Hence, focusing only on differences across disciplines may not be sufficient. For instance, given that there are significant differences across disciplines, in what ways and to what extent can PhD education be consistent in developing researchers who are not only equipped to contribute to a particular discipline, but also to the economy and society? Do the differences suggest more effective methods that could be applied across disciplines to develop PhD students as researchers with broader sets of knowledge, skills and capabilities beyond their own discipline?

The role of disciplinarity in PhD education in the literature has also been over-represented at times. For example, it is common for studies to attribute heterogeneity in the educational processes to disciplinary differences, but without taking into

consideration other influences such as institutional norms that may shape inter-departmental differences within a discipline. For instance, the study by Chiang (2003) explored how PhD students in different discipline perceived their learning experiences. This study sought to illustrate differences in the learning experiences of PhD students between the disciplines of education and chemistry, and was based on a large-scale survey that comprised more than 1,100 students across twenty-eight Education and thirty-one Chemistry departments in the UK. The empirical evidence presented in the study was gathered from students using questionnaires that contained a seven-point Likert scale measuring the effectiveness of supervision and the quality of the research environment, supplemented by interviews with eight students. The findings of the study suggested significant differences in the learning experiences of students across the two disciplines, and found that students in chemistry had a more positive experience compared to their peers in education. Based on the evidence, Chiang (2003) argued that this disciplinary difference stemmed from differences in the structure of the research training during PhD education between education and chemistry, where chemistry adopts a 'teamwork' approach and education adopts an 'individualist' approach. However, although the study drew upon a large-scale survey that may provide representation of the field of education and chemistry, and was based on a large sample of departments with encouraging response rates from the students, it remains to be seen the extent to which these departments can be considered homogenous. Also, the lack of findings in terms of inter-departmental differences within a discipline, and the influence of HEIs in terms of the different regulations and structures that shape the educational processes, may be seen as

limitations as well as potential areas for future research. More importantly, there might be an over-representation of the influence of disciplinarity in PhD education.

Conceptually, disciplines can also be over-represented in three different ways, and these different forms of over-representation need to be considered in thinking about the role of the discipline in PhD education.

First, even within a discipline there are notable differences, and these differences can be attributed to schools of thoughts rather than the discipline. For example, in the field of economics, Marxist, Keynesian, Austrian, neo-classical and monetarist economists each have contrasting approaches and assumptions in terms of the ways they approach economics (Cox, 1997). Certain schools of thoughts in economics, such as neo-classical economists, tend to be more mathematically inclined and rely on mathematical models to predict economic events. Hence, economics departments that lean towards the neo-classical school may have a stronger emphasis on the learning and development of mathematical skills and capabilities of their students, as compared to, for example, departments that are more geared towards developmental, business or political economics. Thus, it is not only disciplines that explain variation in the educational processes of a PhD and its focus and emphasis, but equally, different schools of thought may also influence different forms of pedagogies and approaches to learning and development in PhD education. However, the influence of different schools of thoughts on PhD education remains an area that has not been examined in detail in the literature.

Second, different pedagogies can also lead to variation within a discipline. For example, the educational processes between a laboratory-based and a non-laboratory-

based PhD, which may be found in the field of chemistry, biology or physics, are known to be different. Cumming (2009) illuminates the distinctive features of what goes on in a laboratory in the field of molecular biology from the perspective of PhD students, and argues that the laboratory is a distinctive form of pedagogy. This therefore suggests that there may be more than one distinctive set of educational processes in the PhD, even within a discipline, which are driven by different pedagogies. The study by Cumming (2009) makes an important contribution to the literature of PhD education, which on the one hand highlights the role of pedagogy in the learning and development of PhD students, and on the other hand challenges the over-representation of disciplinarity.

Third, different 'epistemic cultures' can also result in differences within a discipline or scientific culture. Knorr-Cetina (1999) introduced the concept of 'epistemic cultures' to illustrate the production model of scientific knowledge in a laboratory, from the standpoint that a laboratory is not only an organisational setting for work, but also a significant agent in the production of scientific knowledge. Comparing across two laboratories, one in high energy physics and another in molecular biology, Knorr-Cetina (1999) points out the different epistemic cultures in terms of what is considered knowledge, how knowledge is obtained and how knowledge is used, and subsequently argues that epistemic cultures do vary even within a scientific culture. Thus, it may be an over-generalisation to conceptualise science as a discipline, for example, without taking into consideration the differences within a discipline resulting from different epistemic cultures.

Besides the over-represented use of discipline, the concept of a discipline in itself is also somewhat problematic, and this has implications for PhD education. The definition of a discipline can be inconclusive and the 'boundaries' used to determine a discipline have been found to be relatively complex and fluid since these concepts were socially constructed by the culture and norms of the disciplines (Becher and Trowler, 2001). Becher and Trowler (2001) cited the example of how an economist who specialises in microeconomics has more common ground with a game theorist and organisational theory psychologist, as compared to a fellow economist who specialises in macroeconomics and growth models. This example illustrates the fluidity of defining the 'boundaries' and 'adjoining territories' of a discipline. It is also cautioned that the definition of a discipline used in the context of examining PhD education should not be regarded as 'given'; it is also necessary to be aware of and acknowledge the fact that the boundaries used to define a discipline or research field are 'inherently arbitrary' (Delamont *et al*., 2000). Furthermore, with the gradual emphasis on concepts such as multi-disciplinarity, inter-disciplinarity and trans-disciplinarity, the concept of discipline has also been challenged (Gibbons *et al*., 1994; Mittelstrass, 2000; Nowotny *et al.*, 2001), and this has implications for the dominant emphasis of disciplinarity in PhD education.

To summarise, disciplinarity has been a major factor of influence on PhD education, and it remains an important factor for examination in order to develop a better understanding of the educational processes of the PhD. However, at the same time, there is also a need to recognise some of the limitations and problems associated with the concept of discipline, particularly in defining a discipline.

This study therefore chooses to focus on a department instead, whereby a department is an administratively defined entity within an HEI, and is also an 'outpost' representing a discipline within the HEI (McAlpine *et al*., 2009). On the one hand, the framing of a department may potentially help us to understand the influence of institutions and also different schools of thoughts within a discipline through inter-departmental differences. On the other hand, intra-departmental differences may also suggest the influence of pedagogy and the importance of interpersonal factors, for example between supervisors and students and the approaches used in supervision. The following section will move to the interpersonal level to explore the evidence that helps us understand the educational processes at this level.

Interpersonal Level

The interpersonal level of PhD education comprises two major aspects: the supervisory relationship between the student and their supervisor, and interpersonal interactions with other actors. Therefore the review of the literature in this section will also be structured in this way.

Supervisory Relationship

The supervisory relationship is one of the areas within PhD education that has been examined extensively in the literature, and this interpersonal relationship, either one-to-one or with a team of supervisors, has proved to be a major factor influencing the experience, learning and development of PhD students (Leonard *et al.*, 2006; Lovitts,

2008; Maxwell and Smyth, 2010). In the literature, there is an understanding of the prominent influence the supervisory relationship can have on the educational processes, and also of the influence of individual-level factors on the relationship. We also know from the literature the extent to which the relationship is guided by the pedagogies, strategies and approaches used by supervisors, as well as the ways the multiple roles of supervisors can shape this relationship. However, there remain areas that required a more in-depth understanding, which this study can identify and contribute to with the empirical evidence gathered.

Supervisory relationships and the role of supervisors are the most important aspects of PhD education. Supervisors make important contributions to the learning and development of PhD students, and their role is even more crucial in helping their students to complete the PhD within the 'stipulated' time frame. Particularly in the UK, timely completion has been a major concern, and the supervisory relationship plays an important role in ensuring the timely completion of the PhD. In a study using questionnaires and interviews with a cohort of students in an HEI, it was found that students' perception of the time they received from their supervisor had a significant relationship with the timely completion of their research (Wright, 2003). A similar conclusion was also reached by examining a national survey of PhD students in the US, whereby a satisfactory supervisory relationship was identified as an essential component of success in PhD education (Zhao *et al.*, 2007). These similar conclusions reached by studies in the UK and the US demonstrate that regardless of the model of PhD education, the supervisory relationship and supervision is the most important process determining the successful completion of the PhD.

Besides establishing the importance of the supervisory relationship, it is important to identify the factors that contribute towards a positive relationship between student and supervisor. From the literature, the factors that significantly influence this relationship include power dynamics, age, and social and gender composition (Acker, 2001; Deem and Brehony, 2000; Leonard, 1997). Based on their account of twenty-six PhD students in the social sciences, Deem and Brehony (2000) illustrated the different forms of relationship between student and supervisor, and concluded that these relationships were shaped by power dynamics and social and gender compositions. Another study, which intended to unpick the implicit dimensions of supervisory relationships, demonstrated that there are expectations and administrative arrangements within a supervision, such as how often the student and supervisor meet, the content of their meetings, and how much work the student and supervisor expect the other party to do within a given time frame. More importantly, however, a supervision is underlined by implicit factors resulting from power dynamics, age, gender, reciprocity and intimacy between these two actors. An earlier study by Leonard (1997), which was initiated to examine the notion of gender within the supervisory relationship, found that while gender remains a major factor influencing the dynamics of a supervisory relationship, this relationship is also influenced significantly by factors such as individual characteristics and the personalities of both student and supervisor. Importantly, these studies highlighted that the supervisory relationship is an important interpersonal relationship, which is also significantly influenced by individual factors.

However, despite the importance of the supervisory relationship, a more recent survey across European HEIs found that supervision is the least satisfactory process for the

students. Only slightly more than half the students indicated they were satisfied with the quality of the supervision they received, and between 15 and 20 percent of these students reported that their supervisors did not fulfil their roles and responsibilities in providing adequate supervision (Byrne *et al.*, 2013). This recent study therefore underlines a need to examine the supervisory relationship, whereby although it remains an important and major process in PhD education to develop students in becoming researchers, there are problems that may lead to a sense of dissatisfaction among students.

Although, as pointed out earlier, the supervisory relationship is important in PhD education regardless of the model used, this relationship is much more complex than merely being a process whereby a supervisor guides a student to conduct research. It is also highly misleading to consider this supervisory relationship and the supervision process to be homogenous, because even within the same model, HEI or department, such relationships can differ considerably.

For example, there are notable differences in the process of finding a supervisor. In the case of the UK, students are typically assigned the supervisor at the start of the PhD, while in the case of Canada, which practices the structured model of PhD education, students are enrolled into the PhD programme and began with a coursework component. The process of finding a supervisor in the structured model occurs towards the end of the coursework, and students and supervisors are left to negotiate this matching process (Acker, 2001). These differences can be attributed to the different model and structures of PhD education.

However, interestingly, the same process of finding a supervisor can be different even within the same HEI or department. In the case of the UK, there were two distinct matching processes, which Acker (2001) called warm and cold entry. A warm entry process is where the students have already developed an understanding of the supervisor, either by meeting the potential supervisors before applying for the programme or when the student has previously studied in the same institution. Conversely, a cold entry process is where students "simply enrolled at a conveniently located institution" and a supervisor who has the closest shared interest is assigned to the student. These different matching processes within the same model, HEI and department highlighted the fact that a supervisory relationship is highly complex, requiring careful examination in order to understand PhD education.

Furthermore, the different matching processes, even within a same department, can teach us useful lessons to help us think about the supervisory relationship and the supervision processes in a PhD. On the one hand, there is a need to consider the unique characteristics of different contexts and systems in understanding PhD education. Drawing from the examples of UK and Canada, the notable differences between the two countries are not only in terms of the overall structure of PhD study, such as different emphases on coursework, as described in the earlier part of this chapter. Instead, the differences can be much more nuanced even in terms of the seemingly similar process of finding a supervisor, and such nuanced differences potentially influence the interpersonal interactions that take place during PhD education. On the other hand, as the study only demonstrated two implicit aspects of supervision, there is a need to understand the other implicit aspects of a supervisory relationship and the relationship as a whole, and to caution against making

assumptions and assertions about this relationship without grounded empirical evidence.

The understanding of supervisory relationships and the supervision process also concerns the influence of the pedagogies, strategies and approaches used. These factors are important because they shape the supervision process, and therefore they need to be examined. The use of appropriate pedagogies, strategies and approaches may enhance the supervision process and enable it to be more effective in guiding the students, but conversely, inappropriate pedagogies, strategies and approaches may lead to tensions and problems for the process and the relationship. Thus, examining what we know from the literature about aspects that lead to tensions and problems may be instrumental to guide this study towards an exploration of other complexities in the educational processes of a PhD.

The use of appropriate pedagogies, strategies and approaches in supervision is driven by the philosophical principles underlying the supervisory relationship, and therefore understanding these principles as they are applied by supervisors will enable us to appreciate the use of different pedagogies, strategies and approaches. As a way to understand the philosophical principles, a study was conducted to interview academics in Australian HEIs who did their PhDs in the UK in the early post-World War II period, as well as carrying out interviews with current supervisors in Australian HEIs. Johnson and colleagues (2000) explored the question of the pedagogies used by supervisors to guide their PhD students in developing the sense of independence and autonomy in being a researcher. This study focused primarily on supervisors and academics in the field of English, sociology and education, and highlighted the ideas that supervisors

have. Supervisors in the post-World War II period in the UK required their PhD students to have an 'always-already' sense of independence before even beginning the process of the PhD. In addition, the pedagogy involved in the supervisory process was found to be 'invisible', made up of conflicting paradoxical ideas of independence and autonomy on the one hand, and being submissive to the pedagogical norms on the other hand. However, such paradoxical ideas tend to have been resolved by supervisors of the current generation by making clear their expectations to the student early in the PhD process. Although this study did not clearly explain the source of its empirical evidence, the findings and conclusions demonstrate the need to re-think the philosophical principles underlying the supervisory relationship. The contradictory and paradoxical ideas that guide pedagogies, strategies and approaches in supervision, if left unexamined, may potentially create tension and mismatched expectations between supervisors and students, and these tension and mismatches can be detrimental to the supervisory relationship. Furthermore, because the study by Johnson and colleagues (2000) involved supervisors and academics of different generations, and pedagogies, strategies and approaches changed over time, this findings would suggest that the supervisory relationship in a PhD is not stagnant but instead may evolve over time.

Another major pedagogy involved in PhD supervision is writing. As writing is an essential aspect in the production of a PhD thesis, there is a focus in the literature that attempts to understand 'writing' as a form of pedagogy and a strategy used in supervision. Despite the fact that the learning in PhD education as a form of apprenticeship is mediated through the supervisory relationship, there is a limited understanding of how supervisors teach and students learn to write (Aitchison *et al.*,

2012). However, there has been recognition in the PhD education literature of writing as a form of pedagogy used in supervision. For instance, Kamler and Thompson (2006) explored the strategies used by supervisors in helping their PhD students to improve their writing, for example by re-structuring, strengthening and making arguments clearer in the ways PhD students write, as well as the ways in which supervisors provide feedback and comments on the work produced by their students. Through the examples of the strategies used and the improvements students made by taking onboard the recommended strategies, Kamler and Thompson (2006) highlight the importance of understanding the pedagogies, strategies and approaches, as well as the ways in which these different strategies and approaches used by supervisors shaped and influenced the learning and development of PhD students within the supervisory relationship. However, it is important to note that the work of Kamler and Thompson (2006) is not an academic article but is in the form of a book which aimed to highlight the importance of writing as pedagogy. Hence, the evidence presented may have been selectively chosen to portray positive improvements of the students, and the book may not have discussed non-improvements or other meditating factors. Nonetheless, the work of Kamler and Thompson (2006) demonstrated the possible role of writing as a form of pedagogy that influenced the supervisory relationship.

Although Kamler and Thompson (2006) proposed the idea of understanding writing as a form of pedagogy in supervision, the examples they used mainly focused on the fields of social sciences and the humanities. In these fields, writing has a significant role in the development of students in becoming independent researchers. However, what about students in the field of sciences? The argument in favour of writing as a form of pedagogy is equally valid, although writing in the sciences may not be as

strongly emphasised as in the social sciences and humanities (Aitchison *et al.*, 2012). A study to understand writing in the sciences, based on an online survey of thirty-six students and twenty-nine supervisors, focus group discussions with twenty-eight supervisors and telephone interviews with nine students, found that almost all students have difficulties with writing and supervisors described writing as a challenge for their students. To address this challenge of writing, feedback was most commonly used as a pedagogy for learning to write, where some supervisors used track changes and others discussed feedback face-to-face. Interestingly, there were supervisors who took it upon themselves to re-write theses for students who struggled to write but who had produced significant results and findings from their laboratory work. These incidents may be peculiar to the sciences, but we need to question the incentive for supervisors to do this. A possible explanation is that writing the thesis can be seen as a joint activity in a supervisory relationship, and therefore supervisors made the extra effort to ensure the successful completion of the PhD. However, while students and supervisors share a common objective in writing, the findings as a whole found that writing is a major activity and also a source of tension and dissatisfaction in the interpersonal relationship. More relevant to this study, the fact that this activity can be a source of tension within the supervision process underlined the importance of examining the educational processes more closely to gain an understanding of the complexities therein.

In an attempt to understand the supervisory relationship, another major focus in the literature is the role of supervisors. The argument is that a supervisor can have more than one role in this relationship, and hence, how the supervisor juggles his or her

roles and decides which roles to assume in different periods of the relationship may have an important influence on the learning and development of the students.

A supervisor does not only advise the student to conduct research; they may concurrently assume more than one role, which may include: organising the supervision, giving feedback, advising students on organisational and institutional matters, editing and proofreading students' work, providing information and advice on a variety of issues including personal, professional and financial matters, finding a job for the student, introducing the student into the professional community of conferences, networks and publications, and maybe even supporting the student through crises (Acker, 2001; Pearson, 1996). In order to systematically understand the role of a supervisor, Vilkinas (2008) examined the role of supervisors using a framework from management studies. The framework, originally intended to understand the roles of managers based on the activities they participated in, was adapted to examine the supervisory relationship in order to understand the roles of supervisors. However, this adaption of roles from manager to supervisor needs to be considered more carefully. The adaption process was treated as rather unproblematic by merely redefining the activities undertaken by a manager and applying these activities in the context of thesis supervision, without a fundamental re-thinking about the different nature of the activities involved and the roles undertaken by both managers and supervisors. Nonetheless, based on the activities, the framework outlined the five roles of supervisors as: Developer, Deliverer, Monitor, Innovator and Broker. The Deliverer, Monitor and Broker categories are task-focused, while the Developer and Innovator categories are people-focused. The study was based on interviews with twenty-five supervisors across seven HEIs to understand the activities

these supervisors participate in within the supervisory relationship. The findings revealed that the majority of supervisors participated in activities that focused on the task, which were primarily to "support the students intellectually and encourage them to complete their research – all activities designed to get the task done" (Vilkinas, 2008, p. 307). Despite drawing on a relatively small sample of academics, this study has helped us to gain a better view of the different activities and roles within the supervisory relationship, as well as the perspective of supervisors about the relative importance of their roles and their involvement in supervisory activities.

However, although a supervisor may have different roles within the supervisory relationship to support the students to complete their research, there remains a need to understand the role of the supervisor with regard to the wider context of the PhD. For example, as the role and purpose of the PhD have widened to include economic roles, and since about half of all PhD graduates move on into non-academic careers, there is a need to explore the role of supervisors in supporting their students with regard to the students' intended career (Raddon and Sung, 2009), and how approaches and strategies used in supervision may prepare students for employment in the academic or non-academic labour markets. The widening context underlying the role of supervisors needs to be investigated using empirical evidence, particularly as the PhD education is undergoing rapid change and transformation influenced by socio-economic, policy and other external influences as discussed in Chapter 1.

In summary, although the supervisory relationship and the supervision process have been examined from different aspects in the literature, and some of the areas that need a more in-depth understanding have been highlighted, there is a significant need

to explore two major aspects of the supervisory relationship based on empirical evidence about what is happening in PhD education. First, it is important to note that a supervisory relationship is made up of at least two important actors: the supervisor and the student. While there has been a focus on the role of supervisors, there is an equally important need to understand the process from the perspective of students in terms of how they understand their role, participation and involvement within this significant educational process (Leonard *et al.*, 2006; Park, 2007b). There is also a need to understand, individually and collectively, the roles of supervisors and students, as well as the perspectives of both actors about, for example, the interaction, power dynamics, organisation, activities and tasks within this significant educational process, to allow us to develop a more holistic understanding of this important and complex educational process (Lovitts, 2006). The complexity of these processes suggests differences, mismatches and tensions between supervisors and students within the supervisory relationship as well as in the learning and development of PhD students, for instance in terms of tensions and dissatisfaction due to differences in expectations about the activity of writing. However, insights such as this on other activities in the supervisory relationship have been limited and need to be explored.

Second, a supervisory team has been recommended by the QAA (QAA, 2004) to ensure quality, and this arrangement is becoming more common, but there is only a limited understanding about the extent to which this form of supervision can positively impact the learning and development of PhD students. Although Park (2007a) outlined a number of advantages of team arrangements, which include providing cover for absences, allowing new supervisors to be mentored, and giving students access to a wider range of academics with different strengths, outlooks and experiences, these

advantages remain speculative. There is a need for grounded empirical evidence to illustrate, for instance, how supervisory teams function, the interactions between the student and supervisors, and how different supervisors balance and complement their roles, in order for the advantages of supervisory teams to be fully understood.

Multiple Actors and Activities

Learning and development in PhD education at the interpersonal level is not only confined to the supervisory relationship. There are many formal and informal processes at this level that involve a range of actors and activities, which collectively shape the educational processes of the PhD. All PhD students have multiple identities, whereby as well as being a student, they come into contact with families, friends and society throughout the duration of the PhD. In these interactions, a student encounters countless people who may directly or indirectly inspire, motivate and encourage their development to become a researcher. Furthermore, if one reads the acknowledgement pages in PhD theses, there are many individuals besides supervisors, peers and other colleagues who are acknowledged as having had a positive part to play in the process of the PhD. Although some of the role and influence of these actors and activities has been documented in the literature, there is limited information and no systematic way to understand how these other actors play a part in the activities that support development during PhD education.

The multiple identities of PhD students have some degree of influence on his or her learning and development. Understanding how these multiple identities play out, and recognising the possible tensions and contradictions, can help to provide a better

understanding of the processes and experiences of students during a PhD. In an autobiographical account, Barnacle and Mewburn (2010) describe the idea of learning that occurrs "within and across multiple overlapping" actors and contexts. Analysing Mewburn's personal experience of preparing a presentation based on one of her readings during the course of the PhD, this study illustrates how the preparation of a presentation involved multiple human and non-human actors, which interweaved between her everyday life as a mother and her identity as a PhD student. Although based solely on a single experience of an individual during the preparation of a single task during a particular PhD, the narrative demonstrated the role and influences of 'multiple overlapping' actors, activities and contexts in the learning and development of a PhD student. Hence, these multiple overlapping interactions over the course of the PhD can collectively shape educational processes as well as the experience of pursuing a PhD.

Besides understanding the multiple identities and interactions of a student during the course of the PhD, there are also educational processes at the interpersonal level outside the supervisory relationship. These processes, particularly the informal ones outside the domain of the department or HEI, can also have a significant influence in shaping the learning and development of students. For example, informal and indirect educational processes that were led by students have shown their value in helping students to learn and receive support in the course of the PhD. In exploring three peer-led activities in a PhD, namely teaching, journal editing and career mentoring, Hopwood (2010) examined the intentions of students in participating these activities, and the challenges they encountered, but more importantly he also documented what they learn and how learning took place within these activities. This study was based on

the accounts of thirty-three PhD students across fifteen disciplines in seven HEIs in the UK, and illustrates that learning opportunities can be embedded in personal and social interactions between peers. Similarly, Pilbeam and colleagues (2013), by exploring the social networks of PhD students, reaffirmed the role of peers that influenced the learning and development of these students. The implications of these findings and conclusions reiterated the need not only to focus on the supervisory relationship, but also to give an emphasis to understanding the roles and influences of multiple actors and activities at the interpersonal level, all of which collectively shape the learning and development of PhD students.

Based on these limited but revealing studies, there is a need for more empirical evidence to help us understand the role of formal and informal activities, and the ways and extent to which a range of actors collectively shape the learning and development of a PhD student. Despite understanding that it is impossible to entirely capture the influence of actors and activities at the interpersonal level, any attempt to provide as much detail as possible about these influences is commendable and potentially useful to provide an insight into understanding the complexity of educational processes in PhD education. Recognising the importance but also the difficulties of capturing multiple interactions, the conceptualisation of the interpersonal level in this study is limited to interactions with peers and other academics in the department and HEI. The next section will focus on the inner-most circle of the conceptual framework, which is the individual level.

Individual Level

At the individual level, PhD students and supervisors are the two major foci in the literature. The focus on these actors arguably began in the 1980s and was driven by the need to understand the view from the ground in order to complement "statistics about postgraduate education and descriptions of broad organisational and policy structures" and provide an overview understanding of the PhD (Becher, 1993, p. 135). Insights from the ground and an understanding of the individual perspective provides a context that is important if notions of PhD are to move beyond solely taking a simplified and overly-generalised perspective as an outsider to understand what goes on in the PhD process. More importantly, besides understanding individual experiences, it is also important to think about the nuances, meanings and relationships underlying these experiences and make them visible, a process that De Bono (2009) described as "adding colour to a black-and-white photograph" (p. 169). The discussion in this section will be divided into two parts: the first part focuses on students and the second on supervisors, to examine what is known about these individual experiences.

Student

The experiences of PhD students have been a major focus in the literature of PhD education. This focus, specifically in the UK, has been strongly devoted to identifying the factors that encourage or hinder PhD students to complete their PhD on time, and these studies have predominantly underlined the important influence of personal and social factors. However, while personal and social factors have been important in

shaping the learning and development of PhD students, there has been less of a focus on the influence of the professional and educational backgrounds of these students. Furthermore, there has also been a lack of understanding of how these four factors – personal, social, professional and educational – independently and collectively shape the individual experiences of students in learning and developing to become researchers through PhD education.

Although the PhD has existed in the UK for almost a century, the focus on individual students has been relatively recent. A pioneering study was undertaken by Becher (1993) to explore day-to-day activities across three disciplines, and this study made an important contribution to the PhD literature in this country by putting students at the forefront and concentrating on understanding how their experiences impacted on the learning and developmental processes of PhD education. Becher carried out semi-structured interviews with forty-five academics and nineteen PhD students across three departments each in economics, history and physics. Among the issues emerging were time constraints on completion, a sense of loneliness in the process of conducting research, sustaining motivation and morale throughout the duration of the project, as well as the working environment. Conceptually, these findings relating to the experiences of PhD students can be categorised into three major factors: personal, social and professional. For instance, personal factors relate to issues of motivation and morale; social factors concern the students' social life and the sense of loneliness, and how these factors shape the experiences of students across the three disciplines; and professional factors involve the working relationship and environment, and how these arrangements vary across the disciplines such as history and physics. Besides illustrating disciplinary differences, Becher (1993) also highlighted nuances within each

discipline that collectively shaped the experiences of the individual PhD students, as well as the ways in which the personal, social and professional factors influenced the individual experiences of PhD students.

However, the claim of disciplinary differences and the influence of individual experience was based on a relatively small number of students, and should be considered with greater care. As this study only sampled three departments in each discipline, the small number of departments may restrict the robustness of the study and limit its claim to representativeness across the many Departments of Economics, History, and Physics in the wide variety of HEIs in the country. However, despite some limitations, this study by Becher (1993) contributed to the PhD education literature, first, by drawing attention to the importance of focusing on the individual experiences of students in understanding PhD education, and second, by providing in-depth insights about these experiences based on grounded empirical evidence.

Building on the work of Becher, Deem and Brehony (2000) undertook a study to explore the experiences of PhD students in the social sciences, focusing in particular on the differences between home and international students and between full time and part-time students. Based on the accounts of twenty-six PhD students in the social sciences across two HEIs, this study adopted the concept of research cultures to understand the experience of students in learning to do research and developing into researchers. Although a major contribution of this study was in highlighting the institutional role of PhD education, which was discussed earlier in this chapter, the study also contributed to the literature at the individual level by illustrating descriptively the important influences of personal factors such as gender, modes of

study and domicile, as well as social factors such as marital status, on the experiences of the students. However, despite illustrating the influences of these factors, consideration should be given to the extent to which these factors can influence the individual experience of students in the sciences and humanities as well as in other HEIs, because the study only focused on the social sciences in two HEIs.

As concerns developed about poor completion and submission rates for PhDs in the UK, the focus on the individual experiences of PhD students further extended to examine the notion of academic success. Over the last two decades, successive reports, reviews and research have highlighted concerns about poor completion and submission rates (Cowen, 1997; HEFCE, 1996; TSO, 1993), and therefore a number of studies have attempted in different ways to understand the factors that influence the individual experience of PhD students and which contribute to timely completion of the research and submission of the thesis.

For example, Wright and Cochrane (2000) examined students' completion rates using submission and completion data of PhD students in a HEI in the UK between 1984 and 1993, and found that personal factors such as domicile (home or international), mode of study (full-time or part-time) and gender did not statistically influence the completion rate. The most significant factor in the statistical model developed to predict whether a PhD student would submit their thesis and complete their PhD within four years was disciplinarity: students in the sciences were statistically more likely to complete their PhD within four years, as compared to their peers in the arts and humanities. It was argued that a student in the sciences was more likely to submit their thesis than his or her counterpart in the arts and humanities because of the

structure of the programmes, with more group work and supervision in the sciences. Although this study reiterated the importance of disciplinarity in PhD education and downplayed the significance of personal factors, such as age, domicile or mode of study, there remains a limitation in terms of the absence of qualitative data. This limitation has not allowed us to gain qualitative insights to understand the experiences of PhD students undergoing the educational processes of a PhD and leading to the completion of the thesis. Without these qualitative insights, our understanding of PhD education remains focused on the 'ends' in terms of the completion, rather than the 'means' which are the educational processes involved in guiding students towards completion and how full- or part-time students from different age groups, localities and home countries experienced these processes.

Partly driven by this limitation, Wright (2003) conducted a mixed methods study that examined submission and completion rates. The study focused on one cohort of students in the same HEI as Wright and Cochrane (2000), but using questionnaires gathered from 143 students and complemented by twenty-one interviews. Although this study did not provide further insights into the influence of personal factors such as domicile, mode of study and gender, it nonetheless contributed to our understanding of the learning and development within PhD education by illuminating social factors, such as the supervisory relationship and the support of peers and family, that shaped the individual experiences of the students and contributed to the timely completion of their PhDs. Importantly, through the questionnaires and interviews conducted, this study allowed the 'voices' of students to be heard; rather than merely assuming the experiences of students with regard to timely completion were homogenous, instead these experiences were found to be much more complex.

Apart from a similar focus on understanding the individual experiences of PhD students through examining the factors that determined successful completion, the two studies – Wright and Cochrane (2000) and Wright (2003) – highlighted two distinctive approaches to understanding the individual experiences of PhD students. Wright and Cochrane (2000) adopted a nomothetic approach that examined a large inter-temporal dataset, which allowed the study to generalise the role of disciplinarity. Conversely, Wright (2003) adopted an idiographic approach that illuminated the relevant factors contributing to the individual experiences of students in successfully completing the PhD. The two distinctive approaches, despite their contrasting tendencies, provided different forms of empirical evidence that both contributed to a more holistic understanding of the successful completion of PhDs and the individual experiences of students in the process of doing so. The contrasting approaches also highlighted the need to consider more carefully the strengths and limitations of the evidence gathered to make claims and assertions about the individual experiences of students, as well as the role of individual level factors such as personal and social factors that influence the experiences of students.

However, although examining the individual experiences of PhD students within the notion of academic success may have helped in gathering evidence to address a pressing concern in PhD education, this focus is narrow and may have failed to capture broader dimensions and factors that shape the individual experiences of PhD students in learning and developing to become researchers. Moreover, understanding the individual experiences of students, which in itself are complex phenomena, would have required studies to adopt different angles. For instance, Bieber and Worley (2006) interviewed PhD students in three HEIs in the United States about how they

conceptualised a career in academia. This study focused on understanding what motivated the students in wanting to become an academic, how they saw themselves in the future, and how they reconciled their own lived experiences with their conceptualisations. By understanding the conceptualisations of PhD students about a career in academia, the study highlighted the influences of personal, social, educational and professional factors that shaped the students' understanding and experience of their PhD and how they conceptualise their future in relation to their current lived experiences.

More importantly, the findings of the study by Bieber and Worley (2006) have two important implications for our understanding of the individual experiences of PhD students in the UK, even though the study was carried out in a US context. First, the study highlights the influence of educational factors in shaping the current experiences of students, specifically their past educational experiences; this factor has not been given much attention in the literature in the UK because of the strong emphasis on the notion of academic success. It is commonly assumed that PhD students have taken a relatively standard 'educational route' into PhD education, and relatively little consideration is given to, for example, the extent in which previous educational experiences shape the motivation of the students, and in turn, how these motivations shape the learning and development in the PhD.

Second, the study also demonstrates the need to examine collectively the personal, social, educational and professional factors that together shape the individual experiences of PhD students. Although these four factors have been examined in one way or another through various studies, there is perhaps a need to explore them

collectively, as well as more thoroughly and in greater depth, which will then enable us to gain a more holistic understanding of the individual experiences of PhD students.

For instance, although higher education in the UK has transformed from an elitist to a mass higher education system, this transformation is not only reflected through the increase in numbers of students, but also entails a diversification of students going into higher education through widening participation (Burgess, 1997; Coate and Leonard, 2002; Scott, 1995; Taylor, 2002). This transformation is not only confined to higher education in general; it also applies to PhD education. As highlighted by an independent review of postgraduate education (HEC, 2012), postgraduate education in the UK, including the PhD, is considered to be the 'last frontier' to widen participation in higher education. Hence, widening participation along with the phenomena of 'expanding up' (Chapman and Chien, 2014) and credential inflation (Dore, 1997), may suggest that, for example, students from the 'working class' or who are 'first generation in their family to access higher education' are now pursuing PhDs. However, there remains a limited understanding of the extent to which such social factors influence the experiences and educational processes of a PhD. As hypothesised using Bourdieu's theory of cultural capital, first generation PhD students may not possess a similar set of 'cultural capital' compared to their peers whose parents have gone through higher education or PhD education and therefore they may encounter different experiences during their learning and development (Bourdieu, 1986; Reay *et al.*, 2005).

At the same time, the influence of professional factors, such as the previous work experiences of PhD students, and how these past experiences facilitate or hinder their

learning and development have been given due attention in the literature concerning professional doctorates (Scott *et al.*, 2004). However, the literature on PhD education has not attempted to take into account past professional experiences alongside personal and social factors in the learning and developmental processes of a PhD. This lack of focus on past professional experiences is perplexing, since there is a growing emphasis on the employability of PhD graduates in policy discussion, as well as the fact that relevant work experience has been found to be an implicit criterion for the selection of PhD candidates in terms of what students can bring to their research (Kiley, 2011). It is therefore important to examine the interaction of these four factors to enable us to gain a more thorough and insightful understanding of the individual experiences of PhD students in learning and developing to become researchers.

Supervisor

The focus of PhD education at the individual level also concerns the supervisor. This focus entails gaining an understanding of the academic staff involved in supervising PhD students. However, this focus has a tendency to examine the supervisor as part of the supervisory relationship, and rarely takes into account supervisors as individuals. Even in studies that focus on the supervisor as an individual, a major part of this focus has been devoted to demographic and personal factors such as gender and age (Becher, 1993; Deem and Brehony, 2000; Delamont *et al.*, 2000).

However, the individual experiences of supervisors can be shaped by many factors, and arguably one of the most crucial factors is their ideas about research. In a study to examine the conception of research among supervisors, Bills (2004) asked five

questions: What is research? What is good research? What qualities make a good researcher? What makes a good research student? Why do research? By observing four focus group conversations with supervisors in Australian HEIs about these five questions, Bills (2004) reported the dichotomous categories of university and non-university research and researchers, and illuminated a dominant perception among these supervisors that privileged university-based research and researchers over other forms of research activities. Based on this insight, Bills (2004) argued that such individual ideas may differ from the ideas of other actors in preparing the next generation of researchers through PhD education and meeting broader academic, economic and societal needs, and these different ideas have implications for the supervisors' development as well as for the learning and development of their students. More importantly, the study demonstrated the importance of recognising and examining the individual perspectives of supervisors, and the extent to which these ideas and perceptions differ across supervisors.

However, there are few studies that focus explicitly on the individual experience of supervisors, specifically how personal, social, educational and professional factors shape the individual experiences of supervisors. Apart from the demographic characteristics and research conceptions of supervisors, the previous educational background of supervisors – for example, whether they have a PhD, and how their own experiences relate to their existing practises as a supervisor – are among the aspects that may be examined. In addition, supervisors' professional experiences and other social characteristics can also help us to understand how these factors influence the individual experiences of a supervisor, and they may be subsequently used as background knowledge to further examine the ways in which these factors shape and

influence the supervisor's approach to supervision and the learning and development of his or her students.

While PhD education has broadened its scope to include the training of generic and transferable skills among the students, the development of supervisors in this direction may also need to be given attention. As Denicolo (2010) argues, regardless of whether they are new lecturers or eminent professors, supervisors need to re-focus on the purpose of the PhD. This refocusing will help supervisors to identify their own needs and develop new skills in order to supervise their students more effectively. Furthermore, as Byrne and colleagues (2013) remarked, besides focusing on the needs to develop the research and professional skills of their students, HEIs also have obligations to provide continuous professional development for all supervisors. However, the literature on PhD education has not focused on the individual development of supervisors, which has an indirect but important influence on the development of students.

To summarise, PhD students and supervisors are the key foci at the individual level, and the studies discussed in this section illustrate the importance of focusing on the individual experiences of students, and to a lesser extent of supervisors, in the learning and developmental processes of the PhD. The understanding of the individual experiences of both students and supervisors can be summarised into four major factors: personal, social, educational and professional. Although these factors have been examined and explored in the literature and have contributed to our understanding about PhD education at the individual level, there remains a need for a more in-depth understanding of particular aspects within each of these factors, as well

as the four factors collectively. More specifically, there is a need for empirical evidence that illustrates how students experience the process of becoming a researcher through PhD education, and how supervisors help and support their students to journey through PhD education. This is crucial to help us focus on these important actors in the educational processes, and to develop a better understanding of PhD education as a whole.

2.3. TOWARDS A MULTI-LEVEL PERSPECTIVE

Through reviewing the literature and organising findings across the different levels, this chapter illustrates what is known about the educational processes of a PhD, whereby a significant proportion of research has been devoted to the individual experiences of PhD students, the supervisory relationship and the role of disciplinarity.

However, this review of literature also highlights the need for more research within and across each level. At the institutional level, although it is recognised that HEIs have their roles in organising and influencing educational processes, there remains a need for empirical evidence to illustrate the roles and influences of institutions within these processes, rather than solely assuming disciplinarity to be the most important influence. While the supervisory relationship is dominant at the interpersonal level, there is a need to explore the roles, involvement and perceptions of the student and the supervisor in the relationship. Furthermore, there is also a need to recognise other educational processes at the interpersonal level that involve the participation of other actors, such as peers and other staff within the departments and HEIs, since these actors may directly and indirectly shape the processes of a PhD. In a similar vein,

although the individual experience of students is a prime focus and there are four major factors which influenced the experience of students and supervisors, there remains a need to understand each individual factor more closely as well as the four factors collectively.

Importantly, organising this review according to level has not only highlighted what is known and the need for more research within each level; it has also illuminated a need to examine the educational processes of a PhD concurrently across the institutional, departmental, interpersonal and individual levels. There are interactions across different levels; for example, although the supervisory relationship is a significant process at the interpersonal level, this relationship is to a large extent influenced by individual level factors such as the personalities of supervisors and students. Similarly, our understanding about the roles of departments and HEIs is also contingent upon our understanding of the individual and interpersonal level interactions between students and supervisors.

Moreover, because the educational processes of a PhD involve multiple actors, the understandings and perceptions about PhD education among these actors may also differ considerably (Nyquist, 2002; Park, 2007b). These differing ideas and perceptions may further translate into tensions and contradictions about the processes across the different levels. For example, Hopwood (2010) illustrates that what students learn in terms of knowledge, skills and capabilities through informal peer-led activities are "unanticipated, indirectly related or even tangential to what was intended" in terms of the kinds of knowledge, skills and capabilities perceived as important by policymakers and employers. To some extent, this unanticipated mismatch has also challenged the

assumption that the provision of learning, such as formal training in generic skills, will lead to an expected outcome, ignoring or downplaying the important influences of multiple contexts and actors (Barnacle and Mewburn, 2010; Cumming, 2010). The findings concerning the unanticipated or unexpected outcomes of learning and developmental activities further emphasise the need not to take for granted the expected outcomes, but to consider more carefully what is learned and developed through these educational processes in terms of knowledge, skills and capabilities (Gilbert, 2004, 2009; Hopwood, 2010; Marton and Ramsden, 1988; Maxwell and Smyth, 2010; McWilliam and Singh, 2002).

The review of the literature concerning the educational processes of a PhD presented in this chapter has in many ways echoed the description of Lee and Boud (2009) that PhD education is a complex field with multiple actors who have different purposes and expectations, and consists of a wide range of activities operating across different levels. To capture this complexity and develop a holistic understanding of PhD education, there is a need to systematically account for what is happening at the macro and policy levels, as well as the educational processes at the ground level. Thus, this study sets out to explore the educational processes of a PhD within and across the institutional, departmental, interpersonal and individual levels, and to elucidate the complexity underlying these processes.

Chapter 3

Methodology

This chapter presents the research design, the sampling framework, issues pertaining to access, and some of the challenges encountered during data collection. This will be followed by a discussion of the analytical procedures, describing how the data were read, coded and analysed, how themes were developed from the codes, and how the empirical evidence was organised to answer the research questions. The final section of the chapter discusses trustworthiness, ethical issues and questions about my position as both a PhD student and a researcher exploring the educational processes of the PhD.

3.1. RESEARCH DESIGN

This research involves gaining an understanding of the educational processes of the PhD and elucidating the underlying complexities. The research focus not only entails a description of the processes by which students are supported to become researchers, but more importantly, through empirical evidence this study seeks to provide information that challenges what is known, questions assumptions, clarifies our thinking by taking the perspectives of the actors involved, and offers a fresh interpretation to understanding these processes (Corbin and Strauss, 2008; Edwards, 2001; Harry *et al.*, 2005). In addition, it has been established that the educational processes in the PhD are complex, as Corbin and Strauss (2008) suggest, and complex phenomena have no simple explanations and may have been the cumulative result of

multiple factors coming together and interacting in often unanticipated ways. There is therefore a need to take into account multiple perspectives in understanding the phenomenon – in this case, the educational processes. The conceptual framework (Figure 1, p. 5) was instrumental in mapping the levels which shape the educational processes, as well as the actors in these levels who influence and participate in the processes; three research questions were formulated to guide the study:

1) What are the similarities and differences in the educational processes in the PhD across the six case studies?
2) In what ways and to what extent, do the similarities and differences lead to complexity in the educational processes within and across institutional, departmental, interpersonal and individual level?
3) What are the forms of complexity, and in what ways and to what extent, does complexity influence the development of PhD students?

Driven by the focus and guided by the research questions and conceptual framework, I chose a multiple case study design to connect the questions and framework with the empirical data (see Punch, 2005; Yin, 2009). The cases were defined as departments, which are administrative entities and 'outposts' of a discipline within an HEI (McAlpine *et al.*, 2009). By defining the department as a case, instead of a discipline as is commonly used in studies related to PhD education, this strategy enabled me to avoid an over-generalised use of the notion of a discipline, and also avoid the conceptual challenges involved in defining a discipline (as described in Section 2.2). The framing of the department as a case also allows more subtle differences across departments in the same discipline, which may have been influenced by factors at the institutional

level, to be taken into account. In addition, the strategy of framing the departments as case studies also facilitates a systematic exploration of the interactions among the actors and their experiences, opinions and involvement at the interpersonal and individual levels – for example, between students and academics within a department. The influence of the institutions and departments as well as the perspectives of multiple actors can be considered as 'contextual understanding', or in Corbin and Strauss' (2008) terms 'essential elements', which in part shape the educational processes of a PhD and the experience of students undergoing these processes.

Furthermore, the aim of the study suggested that I adopt the interpretivist paradigm to approach this research. The paradigm posits that a reality cannot be separated from our knowledge and values, and truth is to be negotiated between myself as a researcher and the participants through dialogue (Cohen and Crabtree, 2006). The paradigm further suggests that it is through dialogue that I can become more informed and develop the meaning of the reality underlying the educational processes of a PhD. The meanings emerging from a research process that relies on a naturalistic method such as an interview have been collaboratively constructed by the participant and the researcher dialectically, and they will illustrate a meaningful reality in the findings to answer the research questions.

Hence, the primary data collection method was semi-structured interviews with key actors involved in PhD education within each department: PhD Programme Directors, supervisors and students. An interview approach was chosen in order to capture the perceptions of these actors, to understand the assumptions that guided their thinking, and to explicate the ways they understand, account for, take action and participate in

the educational processes in the PhD (Miles and Huberman, 1994; Punch, 2005). A major reason for selecting semi-structured interviews, as compared to other methods such as questionnaires and observation, is the opportunity to probe the interviewee to understand the latter's perceptions in greater depth. This depth is particularly important because a specific focus of the study is to understand the educational processes across institutional, departmental, interpersonal and individual levels, and to elucidate their complexities. In comparison, self-completed questionnaires, although potentially providing a larger data set that may yield more generalisable findings, may suffer from superficial responses due to difficulties in determining the seriousness of responses and the lack of opportunity for the researcher to prompt for further responses and discussions (Robson, 1993). Observation is another method that might have been used to understand the processes of learning and development. However, although observation may potentially provide in-depth data on the interactions between student and supervisor or the experiences of students in formal training, it would not be possible to observe the full range of formal and informal activities across multiple levels and actors in different HEIs, departments and even supervision meetings between supervisors and students. Therefore, semi-structured interviews were chosen as the primary method, despite limitations such as not being able to observe the actual processes taking place, or the reduced robustness in claiming generalisability.

In addition to interviews, document analysis was used as a secondary method in the research design to enable a more comprehensive overview. Departmental and institutional documents, such as handbooks or websites for PhD students, were collected and used as additional sources to gather empirical evidence to answer the

research questions. The documents and websites used are listed in Appendix F and will be discussed in more detail in Section 3.6.

3.2. SAMPLING FRAMEWORK

A major focus of the research design was developing a sampling framework for selecting the departments as case studies, and the identification of participants within each department. The sampling framework was guided by one main principle: the selection of contrasting cases. As suggested by Schofield (2002), the selection of contrasting cases aimed to allow for the development of maximum diversity of views to potentially increase the robustness of the findings. Increased robustness will allow stronger claims to be made. Having adopted this as a major guiding principle, a purposive sample was used. The development of the sampling framework consisted of three major steps:

- Selection of disciplines;
- Selection of higher education institutions (HEIs); and
- Selection of participants.

Selection of Disciplines

The literature suggests that disciplinarity is an important factor that influences PhD education. Thus, the design of the sampling framework began with the selection of disciplines. This selection was based on three criteria: the nature of the discipline, the approach used in PhD education, and the career destinations of PhD graduates.

Disciplines are commonly divided into sciences, social sciences and humanities. Using this as the first criterion for selecting a discipline, one discipline was selected from each of these three major divisions. The second criterion was constructed from an imagined continuum of interactions during PhD education. At one end was a group-intensive interaction such as a laboratory-based PhD, at the other end was a highly individualistic approach, and in between the two was a mixture of group and individual interactions (Parry *et al*., 1997). The third criterion was the general trend of career destinations among PhD graduates within a discipline. This characterisation was based on a survey of first destinations of PhD graduates in the UK between 2003 and 2007 (Haynes *et al*., 2009), which highlighted the fact that career destinations for PhD graduates have a strong disciplinary pattern.

Based on these criteria and guided by the principle of selecting contrasting cases, three disciplines were selected: chemistry, economics, and history (see Table 3.1).

Table 3.1. The Three Disciplines

Discipline	Criteria
Chemistry	• A science-based discipline. • Laboratory-based approach to PhD. • Significant number of graduates progress into careers outside of academia.
Economics	• A social science discipline. • Mixture of approaches toward PhD education that vary according to the types of research undertaken by the students. • Significant number of graduates progress into careers in academia as well as careers outside academia.
History	• A humanities-based discipline. • An individualistic self-study process where PhD students spend many solitary hours in the library and archive. Supervisor could possibly be the sole academic interaction. • Large number of graduates progress into careers within academia or the education sector.

Note: Based on criteria adapted from Haynes *et al.* (2009) and Parry *et al*. (1997)

Selection of HEIs

Within each discipline, two HEIs were identified: a Russell Group institution and a 1994 Group of Universities (GOU)[1] institution. Again, the selection of the different types of institution was guided by the principle of selecting contrasting cases. However, although the strongest possible contrasting case would have been between a Russell Group institution and a post-1992 institution, the latter group was not selected due to their strong focus on teaching as opposed to research, as well as the fact that many post-1992 institutions have a smaller number of PhD students.

Table 3.2. The Six Departments

Department	Discipline	Higher Education Institution	Institutional Characteristics
1. Department of Chemistry of Hodgkin University	Chemistry	Hodgkin University	1994 GOU institution
2. Department of Chemistry of Taylor University		Taylor University	Russell Group institution
3. Department of Economics of Smith University	Economics	Smith University	1994 GOU institution
4. Department of Economics of Keynes University		Keynes University	Russell Group institution
5. Department of History of Smith University	History	Smith University	1994 GOU institution
6. Department of History of Taylor University		Taylor University	Russell Group institution

[1] The 1994 Group of Universities (GOU) was officially dissolved on November 8 2013, which was after the period of data collection for this study.

However, instead of selecting an HEI from each of the groups, two Russell Group HEIs and two 1994 GOU HEIs were selected. The intention of this selection was to allow more diversified views about HEIs within each group to develop. In addition, geographical proximity to Oxford and the limitation of resources for extensive travel across the country were taken into account when selecting the HEIs. Thus, six departments across four HEIs were selected (see Table 3.2). Each HEI was given a pseudonym to ensure anonymity.

Selection of Participants

Within each department, the aim was to interview the PhD Programme Director, three supervisors and two PhD students of each supervisor, making a total of sixty individuals across the six departments.

3.3. THE SIX DEPARTMENTS

Before discussing access and data collection, this section presents the setting, background and administrative structure of the PhD programmes across the six departments. The intention is to set the scene and provide the context to gain a better understanding about each of the departments sampled.

Department of Chemistry, Hodgkin University

Hodgkin University is a member of the 1994 Group of Universities, with a campus situated on a hilltop about a mile away from the city centre. Travelling to this campus from the city centre, one passes along a steep hilly road, a journey that resembles the pursuit of intellectual monasticism as one leaves behind the hustle and bustle of the city to pursue knowledge in an ivory tower on the hilltop. The atmosphere on the campus creates a calm and peaceful ambiance, with modern and functional buildings surrounded by gardens and a lake with a majestic view of the city below.

The Department of Chemistry is part of the Faculty of Science and is physically located in three two-storey buildings on the fringe of the campus. Within each of these buildings are the laboratories, seminar rooms and offices that house approximately thirty-five faculty members and around one hundred PhD students. While faculty members each have a room to themselves, PhD students share offices with members of their research group in a room next to or near the laboratory in which they work.

Administratively, a Graduate School was established in the Faculty of Science to coordinate six departments on matters concerning research and taught courses for postgraduate degrees, including PhD programmes. Following the implementation of the *Roberts Agenda*, Hodgkin University also established a university-wide *Postgraduate Skills Training Provider Centre (PGSkills)* to manage and provide generic skills training for all postgraduates in the university, including PhD students.

There are two PhD programmes in this department. One is the “traditional” PhD where a student is enrolled directly into the PhD programme with a research proposal and a pre-determined supervisor. The average duration of the traditional PhD is between

three and four years, and the student is required to submit a thesis and pass the *viva voce* to earn the PhD degree. The other PhD programme in this department is the Doctoral Training Centre[2] (DTC) PhD in which the student has to attend one year of coursework before proceeding to their PhD research. PhD research projects on the DTC PhD Programme have to involve both chemistry and engineering on the theme of the DTC. The current study focuses on the "traditional" PhD programme.

Department of Economics, Keynes University

Keynes University is a Russell Group Institution. Unlike Hodgkin University, which has a demarcated campus, the campus of Keynes University is made up of twenty-nine buildings scattered around an area of approximately 350 square metres. Some of the buildings have a grand and impressive facade; some are three- or four-storey houses that are more than a hundred years old. The more distinctive buildings of the university are built to a modern and futuristic design with sky-bridges used to connect the buildings.

Unlike the three other universities in this study, which offer a wide range of programmes across the disciplines, Keynes University specialises in social sciences. Each department in this university is administered independently in terms of research and taught programmes, with a university-wide *Teaching and Learning Centre* to provide seminars and workshops on issues that are trans-disciplinary – for example,

[2] The Doctoral Training Centre (DTC) is a four-year PhD programme that includes an additional year of taught coursework before the student carries out a PhD research project. The DTC PhD Programme was initiated and funded by the Engineering and Physical Sciences Research Council (EPSRC), and focuses on a specific area or topic – for example, research on digital technology, energy, nanotechnology applications, complexity sciences, and life sciences.

generic skills training and organising preparatory sessions for PhD students as teaching assistants.

All the departments and the offices of faculty members are physically scattered across the twenty-nine buildings. Interestingly, the workspace allocated to PhD students also varies considerably; some PhD students who have teaching responsibility have a personal office for the convenience of tutoring undergraduates, but most are assigned a cubicle in a huge office with more than fifty cubicles and many computer monitors; the room resembles the trading floor at the New York Stock Exchange.

The Department of Economics is one of the leading departments in this university and comprises more than sixty faculty members and one hundred and fifty PhD students. A unique feature of this department is the fact that its PhD programme is known as "a US-styled PhD in a UK university". The PhD programme is significantly different from other similar programmes in the UK. For the first two years of the PhD a student is required to attend six modules of coursework, ranging from microeconomics and macroeconomics to econometrics. These modules are formally assessed and graded, and passing the six modules is a pre-requisite for progression to the research phase of the project where the student is assigned a supervisor. The average duration of the research project is between three and four years, and the student is required to submit a thesis comprising three essays as well as attending a *viva voce*. The duration of the PhD in this department is therefore significantly longer than others in the UK and ranges between five and six years, as compared to other departments with a range of between three and four years.

Departments of Chemistry and History, Taylor University

Taylor University is a Russell Group Institution and a large university with over one hundred departments and research centres ranging from sciences to social sciences and the humanities. The buildings that house these departments and centres are scattered across an area of about five hundred square metres.

A university-wide Graduate School has been established to enhance the student experience of the 8,500 postgraduates in this institution, which includes implementing the inter-disciplinary *Skills Development Programme*, coordinating various research funds and scholarships, and providing intellectual and social contact between postgraduates of different disciplines, backgrounds and countries. However, matters pertaining to research and postgraduate courses remain the responsibility of the individual departments.

Chemistry

Administratively, the Department of Chemistry is part of the Faculty of Mathematical and Physical Sciences with approximately fifty faculty members and one hundred and twenty PhD students. This department is physically housed in a five-storey building, built in the late 1960s and inspired by a “brutalist” architectural design. The facade of the building is made up of rows and columns of big square windows with exposed concrete. Through these windows one can clearly see the laboratories and apparatus, displaying the bustling atmosphere of a chemistry department.

History

The Department of History at Taylor University claims to be one of the more comprehensive history departments in UK that "covers the entire chronological range from ancient near-East to contemporary history". The Department of History, although administratively part of a larger faculty, operates as a distinct academic entity within the faculty on matters pertaining to research and academic programmes.

This department comprises more than sixty faculty members and approximately sixty PhD students. Interestingly, the building that houses this department has a mixture of historic and contemporary elements. The department is located across four five-storey Georgian terraced houses that have been renovated and refurbished. The entrance to the terraces facing the main street is a false front, with the entrance to the department at the back of the house via a steel stairway painted black, historically used as a fire escape. The inside of the department resembles a labyrinth, with many narrow corridors and tight stairways connecting the offices of faculty members and seminar rooms across these four terraced buildings.

Departments of Economics and History, Smith University

Smith University is a member of the 1994 Group of Universities with its main campus located about two miles away from the city centre. The campus, where both the Department of Economics and Department of History are located, is a fenced area of approximately 130 hectares of country estate with plenty of greenery.

The Department of Economics and Department of History are both part of the Faculty of Arts, Humanities and Social Science. The building housing this faculty is like a huge five-storey labyrinth, which is home to twenty-one departments and research centres, at least three hundred offices for faculty members, and a number of lecture theatres and tutorial rooms. One can imagine the size of the building from the fact that it takes about five minutes to walk from one end of it to the other.

Two Graduate Schools, one for the Social Sciences and the other for Arts and Humanities, were established with the objective of encouraging inter- and multi-disciplinary collaboration among academics and students in Smith University, as well as to develop a range of generic courses for postgraduate students, including PhD students. Both Graduate Schools are physically located in a Victorian house opposite the enormous faculty building. The interior of this Victorian building has been modernised to provide facilities for students, including a computer laboratory, several tutorial and meeting rooms, a common area, a kitchen and lockers. This Victorian house is the hub for postgraduate and PhD students with a sense of casualness, informality and vibrancy.

Economics

The Department of Economics is a relatively new department which was formerly part of the Department of Business and Economics. The department comprises of thirty faculty members and twenty PhD students, with less than half of the staff involved in PhD supervision. In comparison with the other six departments examined in this study, this Department has the smallest population of PhD students. Administratively, all

matters pertaining to research and course programmes are the purview of the department. At the start of their PhD a student is assigned to a supervisor and is required to attend a module on research methods for one term, and the student will submit a thesis and attend a *viva voce* at the end of the PhD.

History

The Department of History has approximately twenty faculty members and more than thirty PhD students, about half of whom are mature and/or part-time students. Similar to the other departments in this university, all matters pertaining to research and course programmes are administratively managed by the department.

3.4. ACCESS TO THE DEPARTMENTS

Having identified the six departments, the data collection process began by negotiating access. Invitation emails were sent to the PhD Programme Directors in the six departments, along with the information sheet for the research project and a letter of support from my supervisors (see Appendix B: information sheet; albeit with a different title). This was followed by telephone calls to discuss the possibility of conducting interviews in the department and arranging a date for the interviews.

There were two minor adjustments to the sampling framework at this stage. First, I did not manage to interview the PhD Programme Director of the Department of Economics at Smith University, although she was able to put me in touch with her colleagues and students and this helped me to gain access. Second, the Department of

Chemistry at Hodgkin University had two PhD Programme Directors: one for the 'traditional' PhD programme and another for the Doctoral Training Centre (DTC). In this case both Directors were interviewed, as this was an opportunity to gather different views, perspectives and approaches to organising two relatively different PhD programmes within the same department. This situation was similar to what Miles and Huberman (1994) describe as 'peripheral sampling', whereby gathering contrasting and comparative information might help to better understand the phenomenon. However, the students of the DTC were not included in the research as they were still at the initial stage of their four-year PhD programme when the interviews were conducted, and the supervisors involved in the DTC were also supervisors in the traditional PhD programme.

After gaining initial access, and with the help of the Directors, three potential supervisors were identified and approached in each department. Where possible the selection of the potential supervisors took into account differences in terms of gender, seniority and area of specialisation. Invitation emails along with my supervisors' letter of support were sent to the supervisors, followed by telephone calls to discuss the possibility of conducting an interview and arranging a date for the interview. All interviews with PhD Programme Directors and supervisors were conducted in their offices, except for one supervisor who happened to be in Oxford so the interview was conducted in a café.

During the correspondence with supervisors or at the end of the interview, I asked the supervisors to suggest a list of their students whom I could interview. When possible, I considered a range of students based on their gender, domicile

(international/domestic) and year of study. In most cases the names and email addresses were provided by the supervisors, except for one of the institutions which had an extensive list of information about their PhD students posted on the website. This information included email addresses, names of supervisors and research topics. Thus, with information either provided by supervisors or listed on the website, I proceeded to contact students by sending an invitation email. As it was difficult to get hold of the students' telephone numbers, I relied solely on email correspondence to approach the students. The sole reliance on email correspondence as the only means of communication with students also meant that I did not have the opportunity to speak directly and invite the students to participate. Hence, because of this situation which Dillman and colleagues (2009) describe as 'lack of interviewer presence', as might be expected, the response rate of students in terms of agreeing to participate in an interview for this study was much lower than for the supervisors and Programme Directors.

The initial plan was to interview two students from each supervisor, but there were several instances where this plan was not possible. For example, there were three supervisors who only had one PhD student, and several students declined to participate. Furthermore, due to the low response rate of students, I began to approach students of the PhD Programme Director instead. Although this change affected the sampling of PhD students, it did not affect the overall research design as the questions posed during the interview with the PhD Programme Directors were also to a large extent related to their role as a supervisor.

3.5. INTERVIEW SCHEDULE

The interviews with PhD Programme Directors, supervisors and students were guided by different semi-structured interview schedules for each set of interviewees. Each interview schedule was divided into five themes: Pleasantries, Purposes, Content, Processes, and Concluding Remarks (see Appendix D). Within each theme there were questions and probes to guide the conversation. Although the interviews were carried out in thematic sequence, the questions and probes were not used in a linear fashion but flexibly in response to the emerging conversation (Punch, 2005). In addition, during the interviews I used 'prompt cards' to guide the conversation (Robson, 2002). For example, when a participant mentioned a skill without elaborating on the educational processes involved, I recorded the skill on a card. Without interrupting the conversation, the card was left visible for me and the participant. At an appropriate point later in the interview I prompted the participant to talk about the educational processes involved which helped and supported the development of the skill that was mentioned.

Prior to conducting the interviews, a pilot study was conducted with two PhD supervisors and three PhD students in Oxford, where one of the supervisors had previously served as a PhD Programme Director in another HEI. The participants for the pilot study were from the fields of education, engineering, mathematics, physics and public health/medical sciences. The pilot interviews were not used in the actual study but were used to improve and fine-tune the interview schedules. As a result of the pilot, there were three main adjustments to the interview schedule. First, after conducting the five interviews, an additional aspect began to emerge when participants frequently talked about the characteristics of a good, ideal and bad PhD student. Hence, an additional question was included towards the end of all the

interview schedules asking participants about the characteristics of an ideal or good PhD student.

Second, there seemed to be a disconnect between discussing what was developed in the PhD in terms of knowledge, skills and capabilities, and the assessment involved. While most participants were able to articulate their perspectives about what and how the knowledge, skills and capabilities were developed in the PhD, it seemed that there was a different understanding of the term "assessment". On the one hand participants were able to discuss informal and formative evaluation, such as how supervisors evaluate the development of certain skills. On the other hand, when the term "assessment" was mentioned, participants would begin to talk about the upgrade/transfer process as the assessment. Therefore, acknowledging that the upgrade/transfer process was an important and significant event in the process of the PhD, I began to ask the participants, especially students, about their experience of, and what they learnt from, this process. At the same time I also avoided using the term "assessment" to probe about the informal and formative evaluations within the PhD.

Third, in the interview schedule with the students there was a hypothetical job interview question, which was designed to prompt PhD students to think about the knowledge, skills and capabilities learned and developed in the course of the PhD and to relate their learning and development to the career they aspired to pursue after the PhD. Following the pilot, I included an extra question asking students about their career plans and aspirations before asking them the job interview question. This additional question was intended to provide more concrete contextual information about their purpose in pursuing a PhD, and enable them to talk more coherently about

what they had already learned or hoped to learn from the PhD process and how that could be related to the job to which they aspired.

The interview schedules in Appendix D were the schedules used for the actual study. During the interviews I typically began with pleasantries and took the opportunity to thank the participants for their willingness to participate and make time for the interview. I briefly explained the project in a general way, reassuring the participants about confidentiality and anonymity and seeking their permission to audio-record the conversation. I also asked the participants to sign the informed consent sheet before proceeding to the interview (see Appendix C for a sample of the consent form).

3.6. SUMMARY OF DATA COLLECTION

The interviews with supervisors and students lasted an average of thirty minutes each, while the interviews with PhD Programme Directors were between thirty and sixty minutes in length. A total of forty-seven participants were interviewed, consisting of six PhD Programme Directors, eighteen supervisors and twenty-three students. Table 3.3 illustrates the supervisor-student pairings and their areas of specialisation across the six departments. Appendix E presents the participants' profiles and details.

Table 3.3. Supervisor-Student Pairings and their Areas of Specialisation

Department & HEI	Area of Specialisation	Supervisor	Student
Department of Chemistry, Hodgkin University	Physical Chemistry	D2	St8
	Organic Chemistry	S1	None
	Inorganic Chemistry	S2	St6 & St7
	Physical Chemistry	S8	St9
	Doctoral Training Centre	D6	None
Department of Chemistry, Taylor University	Physical Chemistry	D5	None
	Materials and Inorganic Chemistry	S9	St16 & St17
	Computational Chemistry	S10	St11 & St15
	Organic Chemistry & Chemical Biology	S11	None
Department of Economics, Keynes University	Microeconomics & Applied Econometrics	D1	None
	Macroeconomics	S4	St1 & St14
	Macroeconomics	S7	St3
	Applied Microeconomics	S12	St12 & St13
Department of Economics, Smith University	Microeconomics, Management & History	S14	St20 & St21
	Applied Microeconomics & Econometrics	S15	St23
	Developmental Economics	S17	None
Department of History, Taylor University	European & Modern History	D3	None
	British Empire & Modern History	S3	None
	Roman and Ancient History	S5	St2
	Medieval History	S6	St4, St5 & St10
Department of History, Smith University	Rural, Economic, Social & Political History	D4	None
	British Political & Labour Movement History	S13	St18 & St19
	American History	S16	None
	European Military & Church History	S18	St22

Note: D=PhD Programme Director, S=Supervisor, St=Student

Appendix F presents the list of documents collected and websites consulted for document analysis. Eleven institutional documents and sixteen departmental-specific documents were gathered. While this institutional information served a common purpose, such as handbooks for students and websites, the documents varied across departments and HEIs. Some departments and institutions provided specific and

detailed documents about the PhD programme, while others provided information that was more general, such as orientation information and helping students to settle into the programme, department, institution and city. Furthermore, across the six departments in the four institutions the range of documents available to the students, as well as to me, varied considerably. It is not the intention of this study to compare these documents, but rather to provide contextual information in helping me to analyse and triangulate the primary data generated from the interviews.

3.7. ANALYTICAL PROCEDURES

This section describes the analytical procedures and the principles used to analyse the data collected from both the interviews and the documents. The analytical procedures comprised four main stages, which were collectively informed by the ideas of Cohen and Crabtree (2006), Corbin and Strauss (2008), De Vaus (2001), Dey (1994), Miles and Huberman (1994), Srivastava and Hopwood (2009), Stake (2006) and Yin (2009):

- Transcribing, reading, refining and re-reading the data;
- Organising the data;
- Summarising and presenting the data;
    - The knowledge, skills and capabilities;
    - The educational processes of a department; and
- Developing the themes.

Transcribing, Reading, Refining and Re-Reading the Data

In a research design that involves interviews, transcription is the core of analysis and represents a distinctive stage in the analytical process (Hutchby and Wooffitt, 1998). The first stage of the analysis, therefore, was to transcribe the interviews into verbatim texts.

Once the transcription had been completed, the text was read along with the audio of the interview. The aim was to develop a sense of familiarity with the data as well as to ensure the accuracy of the transcription (Hitchcock and Hughes, 1995). The reading process was also used to identify incomplete sentences, eliminate expressions such as "uh" and "um", and ensure that the meanings and expressions of the participants had remained intact.

The transcript was then re-read independently without the audio to further ensure the flow and coherence, as well as to gain a better understanding and develop a sense of familiarity with the text. After the second re-reading the text was exported into the computer software *TAMAnalyzer* for the process of coding.

A similar procedure was undertaken with the document-based data. All documents were read, organised and re-read to gain familiarisation before proceeding to subsequent stages of the analytical process. As most of these documents were in paper-based rather than electronic format, documents that were in electronic format were printed to enable a comparable format for analysis. Similarly, for web-based data, the relevant section of the website was read and then printed to form a paper document.

Organising the Data

Coding was the next stage of the analytical process. This process involved reviewing the data, dissecting the data meaningfully into "chunks" or "bits" while keeping the relations between the bits intact, and assigning a code or label to the bits of the data that contained descriptive or inferential information (Dey, 1993; Miles and Huberman, 1994).

The coding process had two steps. First, the coding process took a deductive approach. The text was reviewed line by line and a code was assigned. The codes were pre-determined in the interview schedules, and included Purpose, Contents and Processes. The Processes were further divided into Implementation and Assessment. The Implementation process refers to the ways in which students are helped to develop particular knowledge, skills or capabilities, and the Assessment process refers to the ways in which students are assessed and evaluated on particular knowledge, skills or capabilities, or as a whole during the PhD. This yielded four broad coding categories: Purpose, Contents, Implementation and Assessment.

Once the four broad categories of codes had been applied to the data, the second stage of the coding process took an inductive approach. This was similar to the 'grounded' approach of Glaser and Strauss (1967), where the codes were not pre-determined, but instead were developed from the data. A guiding question throughout the coding process was, "What are the data telling me?" (Srivastava and Hopwood, 2009). This approach was arguably more open-minded and context-sensitive (Miles and Huberman, 1994). Using this inductive approach, the text was reviewed again line

by line and codes were generated, either to create sub-codes on the pre-determined codes or to create a new code.

The selection of data bits to be assigned to a code was not merely in the form of keywords; rather, it involved selecting the part of the text where the participant began talking about a topic, as well as how he or she continued to describe the topic, any metaphor or analogy used for illustration, and the context in which the topic was mentioned. The following is an example of how the selection of data bits to be assigned to codes was carried out (while other examples can be found in Appendix G). The excerpt below is from one of the interviews with a supervisor, and the text in bold indicates the data bit that was selected to illustrate how a supervisor described an approach to enhance the employability of his students:

> Interviewer: You mentioned a very interesting point about getting a job after the PhD. In current circumstances, even with a PhD, it is going to be very hard. Is there anything you personally feel that you could do to help your students to give them the extra edge with academic jobs?
> S18: **I think one thing is to guide them in their choice of research topic. Just take the example of history. As strange as it seems, because there has been a lot of research done by PhD students, but there are certain fields that remained very popular, like British history. So if I have a student who is wavering between doing a topic on British or European history, I would say do European history. Because if you look at the number of candidates for [academic] jobs, there are always dozens and dozens of them for British history, [but] far fewer for European history. And if you take it even further, the most popular area of study in European history is French history. So if somebody has the language skills or commitment to do German or Italian or even Eastern European history, they have got a much better chance of getting a job at the end of the PhD. That is the first thing – I guide them in the choice of research topic because some posts are just going to be much less competition than others.** The other thing I would say is that if possible …
>
> -Extracted from interview with S18, History, Smith University-

The text in bold was first coded deductively as "implementation". Then through the inductive approach, it was also coded as "employability", and further into these three sub-codes:

- "employability > academia"
- "employability > academics"
- "employability > historySmith"

Besides the selection of data bits, another important aspect within the coding process was the development of definitions for the codes. As codes and sub-codes were developed deductively and inductively, their development was constantly guided by a set of criteria defining each code and governing the assignation of data bits to a code (Dey, 1993). When a code was first used, it had to be defined using descriptions about the code and the related data bits. The coding process was carried out using software, and there was a function within the software that allowed definitions and notes to be added or edited at any point in time. Using the same example as above, the codes and their definitions were:

Code: Employability
Definition: Ways to enhance the employability of students

Sub-code: Employability > academia
Definition: Specific ways to help students become more employable in the academic job market

Sub-code: Employability > academics
Definition: Ways in which academics and supervisors help students enhance their employability

Sub-code: Employability > historySmith
Definition: Ways in which students can enhance their employability in the Department of History at Smith University

As the coding process progressed, an iterative method was used to expand the definition of the code. The iterative process involved a constant review of and reflection on the definitions at every instance of selecting data bits. Besides enabling the continuous expansion of the definitions for each of the sub-codes, the iterative process was also a way to ensure that the data bits within a code or sub-code were consistent throughout. This was one of the principles outlined by Schutz (1982) in developing constructs from participants' accounts, and forms the basis on which comparisons can be made.

The paper documents were also coded using the same sequences and principles. The only difference was that instead of selecting the data bits, assigning codes and developing the definitions for the code using a computer, the coding process was done with paper, pen and highlighters. In a similar way, the documents were reviewed line by line and codes were generated based on the selected data bits that were highlighted. Using an iterative method, the codes and definitions were constantly reviewed to ensure consistency. Up to this point, the codes and data bits from both interviews and documents were identical and were used in a similar way for the subsequent analytical procedure.

Summarising and Presenting the Data

The coding procedure in the analytical process described so far has been largely about selecting data bits and labelling them with a code, as well as using an iterative method to continuously expand the definitions. Miles and Huberman (1994) argued that there is a need to understand the patterns, recurrences and the plausible reasons in

explaining the research focus, which was the procedure to summarise and present the data. From the interpretivist paradigm, Cohen and Crabtree (2006) emphasised the importance of this procedure as a way to capture the meanings about the reality that emerged from interviews and document analysis; in this study, the meanings about the reality were educational processes in the PhD that were constructed through the ways they were articulated by participants and described in documents.

Furthermore, in a multiple case studies design such as this, an important analytical procedure is to construct, develop and summarise each case "as a whole" (Stake, 2006; Yin, 2009). The understanding of each case is a pre-requisite for subsequent analysis across different cases. Thus, at this point, the analytical procedure was to gather the data bits according to the descriptive codes using the computer software, and to analyse and compare the patterns and recurrences of the codes. The summary of the patterns was then used to summarise the educational processes of the PhD within each department (De Vaus, 2001; Miles and Huberman, 1994).

Therefore, at this stage of the analytical procedure, there were three major steps taken to summarise and present the data: first, to identify the knowledge, skills and capabilities; second, to identify the educational processes; and third, to present the processes in each of the six cases.

Developing a Classification of Knowledge, Skills and Capabilities

Prior to summarising the educational processes within each department, there was first a need to identify the knowledge, skills and capabilities involved. As Marton and

Ramsden (1988) explain, in order to understand an educational process there is a need to first identify the content, because "content and process cannot exist without one another" (p. 273), and for learning and development to occur, something has to be learned and developed. There have been a number of attempts in the literature on learning, education and training to classify the content of learning and training, including the Taxonomy of Educational Objectives (Anderson *et al.*, 2002; Bloom *et al.*, 1956; Krathwohl *et al.*, 1964), Gagne's Theory of Learning Outcomes (Schunk, 2009), and Eraut's five different types of knowledge as the outcome of vocational and professional education programmes that are transferable into a workplace (Eraut, 2009). In a similar fashion to the attempts listed above to identify the content of the educational process using a data-driven approach, the initial step here was first to identify the knowledge, skills and capabilities from the descriptive codes developed earlier.

Hence, the strategy at this point of the analysis was to categorise the descriptive codes as knowledge, skills or capabilities. This sorting process was guided by the principle of comparing the similarities and differences, and the following categories were identified: disciplinary knowledge, disciplinary skills, research capability, generic research skills, generic and transferable skills, employability, teaching skills, and disciplinary identity. In addition to identifying the knowledge, skill or capability, each of these categories needed to be accompanied by a list of characteristics. These characteristics were statements describing the knowledge, skill or capability, all were backed by the descriptive codes developed from interviews and documents. Table 3.4 summarises the eight types of knowledge, skills and capabilities which are learned and developed through PhD education, as well as their characteristics.

Table 3.4. The Classification of Knowledge, Skills and Capabilities

Knowledge, Skills and Capabilities	Characteristics
Disciplinary Knowledge	• Disciplinary knowledge is explicitly expressed in departmental and institutional documents as an important part of PhD education. Phrases such as "contribution to the knowledge of the subject" (DocK1) and "represents a distinct and significant contribution to the subject" (DocT5) were used to describe a PhD thesis and signify the importance of disciplinary knowledge in the process of producing a thesis. • Academics and students also strongly expressed the importance of learning and developing disciplinary knowledge in the educational processes of the PhD.
Disciplinary Skills	• A disciplinary skill refers to a research-related skill that is discipline-specific – for example, econometrics (economics), laboratory skills and specific skills to use a particular instrument (chemistry), and palaeographical skills (history). • Disciplinary skills have been explicitly included in the list of training and courses for PhD students in the field of chemistry and economics, and are regarded by academics and students as an important element to be learned and developed in the educational processes of the PhD. • Although the importance of disciplinary skills was not explicitly expressed in departmental documents in the field of history, academics and students did also consider this skill as an important element to be learned and developed in the educational processes of the PhD.
Research Capability	• Research capability is explicitly expressed in departmental and institutional documents as an important part of PhD education. An illustration is one of the descriptions that require a PhD thesis to "show a student's ability to design and implement an independent research project" (DocT5). • All the academics and students interviewed had a clear understanding of research capability as the most important element to be learned and developed in the educational processes of the PhD. • However, as the concept of research capability includes "all the skills and abilities to conduct research from the beginning and see it through to the end". This all-encompassing definition may result in confusion about exactly what research capability means. • Therefore, in this thesis, research capability will refer to the knowledge, skills and capabilities directly related to the research activities undertaken by a student, and a separate category is created to distinguish the generic aspect of research capability, namely 'Generic Research Skills'

Generic Research Skills	• A generic research skill refers to the generic aspect of research capabilities, specifically the ways in which communication, presentation and writing skills are used in the context of conducting research.
Generic & Transferable Skills	• Generic and transferable skills are examples of the knowledge, skills and capabilities that are not directly associated with the process of producing a thesis, but which remain an important element to be learned and developed in the educational processes of the PhD. • HEIs and departments have classified a wide range of skills as generic and transferable, ranging from personal development to career development to highly specialised and technical skills. • Although some academics and PhD students seem to have strong and often negative opinions about generic and transferable skills as a whole, they were not in a position to disregard these skills as part of PhD education. However, through the interviews, academics and students emphasised the importance of developing a number of personal dispositions and traits in the educational processes of the PhD. These dispositions and traits, for example creativity, self-management and critical thinking, may also be considered as generic and transferable skills.
Employability	• Employability is one of the capabilities developed in the course of the PhD. However, there are two strands of ideas used to describe employability within institutional and departmental documents. • First, employability is expressed in relation to the potential career destinations that a student might consider after obtaining a PhD degree. • Second, employability is also explicitly expressed in relation to the learning and development of the types of skills employers look for in employing PhD graduates, and these skills are commonly termed employability skills. The term employability skills has been used interchangeably with generic and transferable skills. • In addition to the ideas of employability expressed in the documents, academics and students also conceptualised employability more narrowly, as a form of capability learned and developed in the educational processes of the PhD that prepares a researcher for the academic sector.
Teaching Skills	• Teaching skills are highly regarded by academics and PhD students as an important element to be learned and developed in the educational processes of the PhD. However, this set of skills was not specifically expressed in either institutional or departmental documents. • Although the teaching skills developed in the educational

	processes of the PhD have significant variations across the three disciplines, essentially teaching skills refer to a range of generic and transferable skills such as communication, presentation and management which are used in the context of teaching.
Disciplinary Identity	• As the preparation and the development of a researcher also entails the formation of an identity and a sense of belonging to the community of researchers, particularly in the domain of a discipline, disciplinary identity has been used as a term to illustrate this development. • Disciplinary identity was only specifically expressed in a departmental document in the field of history (DocT1), which highlighted the importance of PhD students becoming a part of the community of historians. • Disciplinary identity as one of the elements developed in the educational processes of the PhD was further illuminated through the accounts of PhD students. Students in the field of history had developed a clear sense of affiliation to their discipline and considered themselves to be historians, but students in the field of economics and chemistry did not express this sense of affiliation.

Although eight different types of knowledge, skills and capabilities were identified, there was significant overlap between them. This overlap occurred primarily because the exercise to develop this classification was data-driven and the demarcation for each knowledge, skill or capability had to be guided by the responses of the participants. For example, 'research capability' and 'generic and transferable skills' are very general concepts where participants implied a slightly different meaning when discussing skill and capability. Between the two there were also overlapping characteristics, which led me to develop an additional category known as 'generic research skills'. The intention of developing this classification was to use it as a point of reference to identify the educational processes. Importantly, it is not the intention and it is also beyond the scope of this study to provide a precise taxonomy such as the work of Bloom and colleagues.

Identifying an Educational Process

With the classification of knowledge, skills and capabilities developed, the subsequent analytical step was to extrapolate the classification to an educational process in the PhD. The purpose of identifying and developing an educational process was to identify a learning and developmental activity, outline the descriptions to help us understand the activity clearly, and extrapolate the knowledge, skills and capabilities intended to be learned and developed. The guiding questions for this procedure were: "What is the data telling me about this process?", and "What are the knowledge, skills and capabilities involved in this process? Are they explicit or implicit?".

Table 3.5. An Example of Identifying an Educational Process

Activity	Description	Explicit Feature	Implicit Feature
Research Training Seminar (RTS) Programme **(DocT1, D3, S3, S5, St2, St4, St5, St10)**	• PhD students are encouraged to attend the departmental seminars and attendance is compulsory for students until their upgrade examination **(DocT1, D3, St10, St5)**. • Besides departmental seminars, PhD students are also required to attend regularly at least one seminar series in one of the historical institutes outside the department, for example Classical Studies, Commonwealth Studies or the German Historical Institute **(DocT1, St2, St10)**. • These seminars are a platform for discussions about academic issues as well as being social events for academics and students **(DocT1, S3, St5)**. • PhD students are required to present their work at the departmental seminar before they can proceed to submit for the upgrade examination **(D3, St10)**.	• PhD research project **(DocT1)** • Research capability **(St10, St5)** • Disciplinary knowledge **(St2, St10, St5)** • Disciplinary skills **(DocT1, D3, St5)**	• Disciplinary identity **(DocT1, St2)** • Generic research skills **(D3, St2, St4, St10)**

Table 3.5 provides an example of an educational process and the ways in which the activity was identified, its descriptions were outlined, and the explicit and implicit features were incorporated. Each characteristic and feature outlined in the table has to be evidenced by at least one code from the interviews or documents. In this example, the Research Training Seminar in the Department of History at Taylor University was discussed in DocT1 and was mentioned or described by D3, S3, S5, St2, St4, St5 and St10. The descriptive codes developed from the document and the interviews were then used to outline the descriptions of the process, as well as to identify the explicit and implicit features.

For instance, the first description – "PhD students are encouraged to attend the departmental seminars and attendance is compulsory for students until their upgrade examination" – was constructed based on descriptive codes gathered from document DocT1 and transcripts from interviews with D3, St10 and St5. The explicit features were the knowledge, skills and capabilities in which the process and activities that were intended to be developed were conveyed explicitly in documents or by participants. On the other hand, the implicit features were the knowledge, skills and capabilities that have to be interpreted or inferred from reading the descriptive codes.

The identification of an educational process is based entirely on the descriptive codes developed from documents and interviews, as illustrated by the example presented in Table 3.5. Similar analytical procedures were iteratively taken to identify the other educational processes across each of the six departments.

Summarising the Educational Processes in a Case Study

All the educational processes of a department were summarised into a table for 'data display' (Miles and Huberman, 1994) in order to analyse, summarise and present the data and codes to advance the analytical process. The intention of a summary for each of the case studies is, as Stake (2006) suggested, to develop each case as the basis for further analysis. Hence, having identified each educational process in a department, all the educational processes in the PhD within a department were summarised into a table where each table represents a case study. The six tables below are a summary of educational processes in the PhD across the six case studies (see Tables 3.6 to 3.11).

Table 3.6. The Educational Processes in the Department of Chemistry at Hodgkin University

DEPARTMENT OF CHEMISTRY, HODGKIN UNIVERSITY			
Activity	**Description**	**Explicit Feature**	**Implicit Feature**
Generic Skills Training	• A PhD student is required to attend eighty hours of training per academic year. • Almost all the training is formalised in the form of workshops, lectures and seminars. • Apart from disciplinary skills, all other skills are organised in a multi-disciplinary setting for all PhD students in the university. • PhD students are assessed based on the number of hours of training they attended and not whether they have developed a skill.	• Generic and transferable skills • Generic research skills • Teaching skills • Disciplinary skills	• Employability
Annual Assessments	• Variety of methods used at different stages to assess the student's progress • First year (upgrade) – poster, report and *viva voce*. • Second year – fifteen-minute presentation at the department • Third year – fifteen- to twenty-minute presentation at the Postgraduate Symposium.	• PhD research project	• Research capability • Disciplinary knowledge • Disciplinary skills • Generic research skills
Laboratory	• A PhD student is assigned to a particular supervisor and will work in the supervisor's laboratory. On the one hand, a student learns to conduct research in the laboratory, and on the other hand he or she plays a part in advancing the supervisor's research agenda. • Apart from conducting experiments, PhD students also demonstrate and guide undergraduates who work in the laboratory.	• PhD research project • Research capability • Disciplinary skills • Teaching skills	• Generic research skills • Generic and transferable skills
Research Group	• Besides working in the supervisor's laboratory, a PhD student is also a member of a research group. • There are regular group meetings between all members of the groups and these meetings are initiated and led by the supervisor.	• PhD research project • Disciplinary knowledge • Generic research skills	

DEPARTMENT OF CHEMISTRY, HODGKIN UNIVERSITY (cont.)			
Activity	**Description**	**Explicit Feature**	**Implicit Feature**
Experiments	• A joint activity between supervisor and PhD student. • This activity not only involves the practical aspect of conducting the experiment, but also engages the supervisor and student in dialectic discussion.	• PhD research project • Research capability • Disciplinary knowledge • Disciplinary skills	• Generic and transferable skills
Networking & Industrial Placement	• A supervisor introduces his students to other eminent scholars in the field and arranges industrial placements for the student, as ways to help them become more employable.	• Employability • Research capability	

Table 3.7. The Educational Processes in the Department of Chemistry at Taylor University

DEPARTMENT OF CHEMISTRY, TAYLOR UNIVERSITY			
Activity	**Description**	**Explicit Feature**	**Implicit Feature**
Informal Doctoral Training Centre	• Several laboratories and research groups were grouped into an informal setting similar to the Doctoral Training Centre (DTC). • This departmental process provides the platform for PhD students to interact, work and collaborate with other students in different laboratories, research groups and areas of research. • This process is also a structure in place to help to develop a range of knowledge, skills and capabilities.	• Disciplinary knowledge • Generic research skills	
Roberts Points	• A PhD student is required to achieve twenty Roberts Points per academic year. • Students can earn points in a variety of ways, for example by attending training courses on generic skills programme, conferences, group meetings, presenting posters and giving talks	• Generic and transferable skills • Generic research skills • Teaching skills • Disciplinary skills	• Employability

DEPARTMENT OF CHEMISTRY, TAYLOR UNIVERSITY (cont.)			
Activity	**Description**	**Explicit Feature**	**Implicit Feature**
Continuing Research Student Scheme	• A process introduced by the department that enables the candidature of PhD students to be extended for an additional year and to provide students with access to facilities and support in order to help them complete the PhD thesis.	• PhD research project	
Annual Assessments	• Variety of methods used at different stages to assess the student's progress • First year – twenty-page report and *viva voce.* • Second year – poster competition. • End of second year (upgrade) – forty-page report and *viva voce.*	• PhD research project	• Research capability • Disciplinary knowledge • Disciplinary skills • Generic research skills
Experiments	• A joint activity between supervisor and PhD student. • Experiment can be illustrated as a trajectory in which students are assigned tasks with different degrees of difficulty as they gradually develop to become a researcher.	• PhD research project • Research capability • Disciplinary skills	• Generic and transferable skills
Conference	• PhD students in this department are encouraged to attend conferences and present papers or posters. • The department encourages students to make use of this process by awarding Roberts Points for attending a conference and the preparation involved.	• Generic and transferable skills • Generic research skills	• Disciplinary knowledge • Disciplinary skills
Laboratory	• A PhD student is assigned to a particular supervisor and will work in the supervisor's laboratory. On the one hand, a student learns to conduct research in the laboratory, and on the other hand he or she plays a part in advancing the supervisor's research agenda. • Apart from conducting experiments, PhD students also demonstrate and guide undergraduates who work in the laboratory.	• PhD research project • Research capability • Disciplinary skills • Teaching skills	• Generic research skills • Generic and transferable skills

DEPARTMENT OF CHEMISTRY, TAYLOR UNIVERSITY (cont.)			
Activity	**Description**	**Explicit Feature**	**Implicit Feature**
Electronic Log System	• Introduced by the university to assess and monitor PhD students' progress. • This also includes monitoring the students' Roberts Points.	• PhD research project • Generic and transferable skills • Disciplinary skills • Teaching skills • Generic research skills	
Research Group	• Besides working in the supervisor's laboratory, a PhD student is also a member of a research group. • There are regular group meetings between all members of the groups and these meetings are initiated and led by the supervisor. • Even for PhD students who do not work in a laboratory, the research group is an important process and a setting of development for the students.	• PhD research project • Disciplinary knowledge • Generic research skills • Generic and transferable skills	
Public Education Initiative	• One of the research groups does not have a laboratory and the PhD students do not have the opportunity to do laboratory demonstration. • The supervisor introduced a series of activities to help PhD students to engage in public education in science. This includes developing an iPhone application and producing public education videos on their topic of research.		• Teaching skills • Generic and transferable skills

Table 3.8. The Educational Processes in the Department of Economics at Keynes University

DEPARTMENT OF ECONOMICS, KEYNES UNIVERSITY			
Activity	**Description**	**Explicit Feature**	**Implicit Feature**
Two-year Coursework	• A mandatory two-year coursework in the PhD programme. • Four of the six modules focused on disciplinary knowledge, one module on disciplinary skill and another module on research capability. • PhD students, especially those who intend to pursue a non-academic career, believe that the coursework is useful to help them gain employment. • Another important feature of the two-year coursework is that it is a process for the department and academics to assess the PhD students. The completion of the coursework is seen the equivalent of the upgrade examination in other PhD programmes.	• Disciplinary knowledge • Disciplinary skills • Research capability	• Employability
Work-in-Progress (WIP) Seminar	• All PhD students are divided into their respective sub-groups according to their area of specialisation. • The WIP seminar is listed as one of the modules/requirement for PhD students and therefore attendance is compulsory. • These weekly seminars are attended by all academics and students in the sub-group, and they are used by the department to continuously monitor the progress of the students' research project.	• PhD research project • Disciplinary knowledge • Disciplinary skills • Research capability	• Generic research skills • Generic and transferable skills
Three-essay Thesis	• Three-essay thesis format is a unique feature of this department. • One of the three essays, usually the best of the three, is known as the "Job Market Paper", and students will use this essay to apply for jobs, particularly academic-related jobs. • Students considered the three-essay format an advantage in the sense that they have three opportunities to demonstrate their research capabilities in three research projects.	• PhD research project	• Employability • Research capability

DEPARTMENT OF ECONOMICS, KEYNES UNIVERSITY (cont.)			
Activity	**Description**	**Explicit Feature**	**Implicit Feature**
Teaching and Learning Centre	• The Teaching and Learning Centre is part of Keynes University, which provides a range of courses that are inter-disciplinary for PhD students across the university. • However, the response of PhD students in the Department of Economics was poor and only one of the five PhD students has ever attended a course at the centre.	• Generic and transferable skills • Generic research skills • Research capability	
Opportunity to Teach	• Almost all PhD students in this department are teaching assistants, teaching in tutorials under the supervision of a lecturer. • Before teaching, all teaching assistants are required to attend formalised preparatory training in the form of a workshop.	• Teaching skills	• Generic and transferable skills • Generic research skills • Employability
Supervision	• Supervision is the major process of the PhD and all supervisors expressed the importance for supervisors to develop the research capabilities of the students through the supervision process. • However, supervisors tend to have different conceptualisations in terms of what they consider to be research capabilities. On the one hand, some supervisors consider research capabilities more congruent with disciplinary knowledge, while on the other hand, other supervisors consider research capabilities to be technical abilities and disciplinary skills.	• PhD research project	• Generic and transferable skills • Disciplinary skills • Generic research skills • Employability

Table 3.9. The Educational Processes in the Department of Economics at Smith University

DEPARTMENT OF ECONOMICS, SMITH UNIVERSITY			
Activity	**Description**	**Explicit Feature**	**Implicit Feature**
One Module Coursework	• PhD students are required to attend a coursework module on research methods, but with a significant focus on econometrics. • Academics stated that students have already attained a considerable level of disciplinary knowledge through the Master's programme.	• Disciplinary skills	• Disciplinary knowledge • Research capability
Seminars	• PhD students are required to attend weekly internal and external seminars.	• Disciplinary knowledge • Disciplinary skills	• Research capability • Generic research skills
Doctoral Workshop	• An annual one-day event in the department to assess the progress of all PhD students. • Every PhD student is required to present their work at the workshop and the department will appoint assessors to give detailed feedback to the students.	• PhD research project	• Research capability • Disciplinary knowledge • Disciplinary skills • Generic research skills
Opportunity to Teach	• PhD students in this department have the opportunity to become teaching assistants by conducting tutorials for undergraduates. • Teaching assistants are required to attend a series of formalised training sessions in the form of lectures and workshops before they begin to teach.	• Teaching skills	• Generic and transferable skills • Generic research skills • Employability
Supervision	• Supervision is the major process of the PhD. • Supervisors illustrate ways in which they help their students to develop their research capabilities and analytical skills, through reviewing the literature and discussing standpoints and problems of the research project.	• PhD research project • Research capability • Generic and transferable skills	

Table 3.10. The Educational Processes in the Department of History at Smith University

DEPARTMENT OF HISTORY, SMITH UNIVERSITY			
Activity	**Description**	**Explicit Feature**	**Implicit Feature**
Criterion for Admission	• The department has an implicit process that only admits students with a Master's qualification into the PhD programme. • This is to ensure PhD students have developed a sufficient amount of disciplinary knowledge and experience of conducting research, as there are no formalised processes in the PhD programme that aim to develop this knowledge and capability.		• Disciplinary knowledge • Research capability
Annual Postgraduate Colloquium	• An annual event aimed at providing opportunities for PhD students to present their work as well as a social event for the students and academics.	• Generic research skills • Generic and transferable skills	
Learning Needs Analysis	• All PhD students (only applied to those who started in Autumn 2010) are required to identify their respective learning needs with the help and support of their supervisors. • A seven-page checklist of the different types of research skills and generic skills for students to think about their learning needs.	• Disciplinary skills • Generic research skills • Generic and transferable skills	
Annual Assessments	• A straightforward process where the student and supervisor each writes a report and an assessor from the department reads both reports, meets the student and supervisor and discusses the reports and progress. • Due to the overly simplified process, there have been problems related to a certain degree of concealment about the problems student encountered.	• PhD research project	• Research capability • Disciplinary knowledge • Disciplinary skills
Organising Conference	• One of the supervisors encouraged his students to organise conferences as a means to network and keep in contact with peers in their area of specialisation.	• Generic and transferable skills	• Employability • Disciplinary Identity

DEPARTMENT OF HISTORY, SMITH UNIVERSITY (cont.)			
Activity	**Description**	**Explicit Feature**	**Implicit Feature**
Opportunity to Teach	• PhD students in this department, at times, may be asked to teach an entire module independently. • Before formalised preparatory courses were introduced, observation was the method used to help PhD students to develop their teaching skills. • Since the introduction of a formalised preparatory course a year ago, the development of the teaching skills of PhD students was carried out in the form of lectures and workshops.	• Teaching skills	• Generic and transferable skills • Generic research skills • Employability
Supervision	• The thesis is the main object guiding the supervision process. The role of the supervisor is to guide and provide feedback for the student at every stage of the thesis. • A supervisor commented about the change in the role of supervisor, from a situation where a supervisor was expected to teach and develop a range of capabilities in the student, to a role of assessing and determining the proficiency of these capabilities and skills, and to point the student towards obtaining specialised training through formalised courses. • The supervisor, it is argued, may also play a role in helping PhD students to be more employable through providing guidance on matters that may influence their capabilities to gain employment – for example, in the selection of research topics and areas of specialisation.	• PhD research project	• Generic and transferable skills • Disciplinary skills • Generic research skills • Employability

Table 3.11. The Educational Processes in the Department of History at Taylor University

DEPARTMENT OF HISTORY, TAYLOR UNIVERSITY			
Activity	**Description**	**Explicit Feature**	**Implicit Feature**
Criterion for Admission	• The department explicitly states that one of the criteria for admission into the PhD programme is a Master's qualification. • This is to ensure that PhD students have developed a sufficient amount of disciplinary knowledge and experience of conducting research, as there are no formalised processes in the PhD programme that aim to develop these knowledge and capability.		• Disciplinary knowledge • Research capability
Roberts Points	• From the accounts of academics and students in the Department of Chemistry, every PhD student in Taylor University has to achieve twenty Roberts Points per academic year. • However, the academics and students in this department, as well as departmental documents such as Handbook for Graduate Students, make no mention whatsoever of Roberts Points. • The explanation for this is that the Department of History has introduced specific-departmental processes – the Research Training Seminar Programme and Foreign Language Training – to substitute for Roberts Points.		
Job Interview Presentation	• PhD students in this department are invited to a presentation for job openings in the department. This is to help PhD students to gain experience from the job candidates, particularly on aspects of presentation and communication at a job interview.	• Generic and transferable skills	• Employability
Electronic Log System	• This is an assessment process introduced by the university to assess and monitor PhD students' progress. • In this department, this assessment process was briefly mentioned in the handbook for PhD students whereby students have a responsibility to keep records on matters pertaining to their research project, supervision, and the development of academic and key skills on the electronic system, but there seems to be a lack of emphasis on the process in this department.		

DEPARTMENT OF HISTORY, TAYLOR UNIVERSITY (cont.)			
Activity	**Description**	**Explicit Feature**	**Implicit Feature**
Foreign Language Training	• The department has an elaborate arrangement for PhD students to master a foreign language related to their area of research. • This process, in collaboration with the university-wide Graduate School, flexibly allocates necessary training for PhD students according to their individual needs.	• Disciplinary skills	• Generic and transferable skills
Single Formal Assessment	• This is the only formal assessment for PhD students in this department, constituting the upgrade examination. • The student has to prepare a summary of their thesis, produce a 10,000-word chapter of the thesis based on primary research, give a presentation at the departmental seminar and attend a discussion with a panel of assessors. • The panel of assessors comprises the supervisor, the secondary/backup supervisor, the PhD Programme Director and an independent assessor.	• PhD research project	• Research capability • Disciplinary knowledge • Disciplinary skills • Generic research skills
Research Training Seminar (RTS) Programme	• PhD students are encouraged to attend the departmental seminars and attendance is compulsory for students until their upgrade examination. • Besides the departmental seminars, PhD students are also required to regularly attend at least one seminar series in one of the historical institutes outside the department, for example Classical Studies, Commonwealth Studies or the German Historical Institute. • These seminars are a platform for discussion about academic issues as well as being social events for academics and students. • PhD students are required to present their work at the departmental seminar before they can proceed to submit for the upgrade examination.	• PhD research project • Research capability • Disciplinary knowledge • Disciplinary skills	• Disciplinary identity • Generic research skills
Opportunity to Teach	• Some PhD students are provided with the opportunity to teach as teaching assistants. • The selection of teaching assistants has an implicit dimension, where these teaching opportunities are only given to PhD students whom the department considers to be “exceptional” and with the potential for a career in academia.	• Teaching skills	• Generic and transferable skills • Generic research skills • Employability

DEPARTMENT OF HISTORY, TAYLOR UNIVERSITY (cont.)			
Activity	**Description**	**Explicit Feature**	**Implicit Feature**
Peer Support Group	• There is a student-initiated support group that aims to provide a social network and mutual support among the PhD students who research in a similar area of specialisation. • Apart from the social aspect, this group also provides indirect opportunities for PhD students to develop their identity as historians, as well as disciplinary skills and generic skills.		• Generic and transferable skills • Disciplinary identity • Disciplinary skills
Supervision	• An experienced supervisor highlighted two aspects of supervision which he considered to be important. First, a supervisor has to proactively engage in discussion with the student on the selection of research focus to provide the direction for the research. Second, the supervisor should provide a structure that guides the development of the research through frequent supervision meetings. • The role of the supervisor in the process of supervision can be illustrated according to the focus of the supervision. On the one hand, the role of the supervisor on matters concerning the research project can be illustrated as a driving instructor who is sitting beside a PhD student and guiding the student through the process of driving. On the other hand, the role of supervisor in the development of skills, for example presentation skills, can be illustrated as an athletic coach who gives practical advice to the student on the development of a particular aspect of the skill.	• PhD research project	• Research capability • Disciplinary knowledge • Generic and transferable skills • Disciplinary skills • Generic research skills

Developing Explanatory Themes

There were educational processes and activities that were similar across the six departments, but there were also differences. The next step of the analysis was therefore to develop the descriptive findings into explanatory themes (De Vaus, 2001). The procedure leading to the development of themes involved interacting with the data, asking questions about the data and making comparisons by adopting the constant comparative method (Corbin and Strauss, 2008). The intention was to seek similarities and differences within and across the descriptive findings, which then enabled a more systematic understanding of the educational processes to develop.

By examining the similarities and differences of the educational processes across the six departments, these processes were grouped into six 'baskets', a term used for the themes. The six themes were:

- Thesis
- Supervision
- Assessment
- Formal Courses
- Skills
- Employability

These six themes can be further grouped into three broader groups, which I described as: traditional, formalisation and broadening. The first 'traditional' group includes thesis and supervision. These two themes have been central features of PhD education since its inception; they are fundamentally related because the primary focus of

supervision is for supervisors to guide their students in producing the thesis. The second group, referred to as the 'formalisation' group, comprises assessment and formal courses. These two themes represent efforts to incorporate some formal structures into PhD education. The third 'broadening' group refers to the themes of skills and employability. Employability has been a major driving force for formal skills training to be incorporated as part of PhD education, and these two inter-related themes can be considered as a recent initiative to broaden the focus of PhD education.

The similarities and differences within and across each of the groups comprising of two themes will be discussed in detail in each of the findings chapters – Chapter 4, 5 and 6 respectively. The guiding principle for the analytical procedures undertaken in this study was to compare the similarities and differences of the educational processes in the PhD within and across these six case studies, and through understanding the similarities and differences, to help to elucidate the complexities of the processes. In each of the chapters I elaborate and explore in greater depth the similarities and differences underlying each theme from the perspectives of multiple actors across the institutional, departmental, interpersonal and individual levels. Within each theme, I compare the educational processes and activities across departments and HEIs to understand the ways in which they were similar as well as different. Alongside this comparison, the activities and educational processes from the perspective of participants in a department, such as the way they participated in the activity, what students have learned or should have learned, and their feedback, comments and thinking, were also analysed by examining similarities and differences to help gain an understanding of these processes and its complexity.

3.8. ESTABLISHING TRUSTWORTHINESS

Quality research involves establishing trustworthiness. This means establishing the validity, generalisability, objectivity and credibility of the design and analytical procedures of the research (Robson, 1993). This study is not claiming generalisability, which is argued to be more applicable to research adopting an experimental design or quantitative method to generalise beyond the sample and make inferences about a population (Corbin and Strauss, 2008; Punch, 2005). Instead, this study sought to establish trustworthiness and credibility by following Corbin and Strauss (2008, p. 302):

> Credibility indicates that findings are trustworthy and believable in that they reflect participants', researchers', and readers' experiences with a phenomenon but at the same time the explanation is only one of many possible "plausible" interpretations possible from data.

A major strategy to ensure the credibility of the research design and analytical procedures used in this study was to provide a clear 'audit trail' of the research process (Guba and Lincoln, 1989). In this chapter, I have outlined the research methods used, how the sampling framework was developed and, how data were organised, sorted and developed, as well as the decisions I made when working with the data. The intention therefore has been to present a clear account that supports the claim for the rigour of the research process and allows the research process to be recreated by others.

In addition, strategies were also used during the course of the study and principles were applied to ensure the rigour of the research process. For example, purposive sampling was based on the principle of selecting contrasting cases (Schofield, 2002), the research adopted an iterative approach to organising and analysing data to ensure consistency (Schutz, 1982; Srivastava and Hopwood, 2009), and all findings, claims and

arguments were grounded in data developed through the interviews and documents analysed using the constant comparative method (Corbin and Strauss, 2008). These strategies and principles were intended to ensure the rigour of the research process in that it was grounded in empirical evidence that fully reflected the participants' experiences of the educational processes in the PhD.

3.9. ETHICAL AND POSITIONAL ISSUES

This study was guided by the British Educational Research Association ethical guidelines (BERA, 2004). Prior to undertaking the data collection, ethical approval was gained from the University of Oxford's Central University Research Ethics Committee (CUREC).

All the participants who were interviewed were informed that their participation was voluntary and they had the right to withdraw from the research without any obligations. Informed consent was obtained from all participants in writing before an interview was conducted. All the participants were also informed that all data would be anonymised and their identities would remain confidential. Pseudonyms were used to ensure anonymity, and in line with the Data Protection Act 1998 I ensured that all data generated remained confidential and was archived and stored electronically on a secure password-protected and encrypted computer.

As the participants were known to one another, there was a need to take into consideration the ethical issue of maintaining confidentiality and respecting the 'space' between participants (Raffe *et al.*, 1989). For example, supervisors and PhD

Programme Directors were colleagues from the same department, and the reason a student was sampled was because of the participation of his or her supervisor in this research. In most cases, PhD Programme Directors were aware that I would interview other colleagues and students, supervisors were aware that I would interview their students, and the students were also aware that I had interviewed their supervisors and that their supervisors knew that they were being interviewed. Thus, information shared by the supervisor or student might potentially be revealed to the other party. One of the ethical principles that I adopted in respecting the space between the participants was not to share any findings from the interviews with any of the participants either during or immediately after the interviews. If they were interested in the findings, I arranged to contact them at a later date and share information after it had been analysed and was not identifiable. This helped to ensure that I did not reveal any information and opinions from other participants.

Besides the ethical considerations, the role and position of the researcher also needed to be addressed. My position as a PhD student conducting this study about PhD education had a paradoxical aspect, since I was both an insider and an outsider concurrently. The insider-outsider connotations illustrated the paradoxical roles and positions of a researcher undertaking qualitative research (Maykut and Morehouse, 1994), which Acker (2000) argues cannot be fully resolved. Instead, it was suggested that researchers should be aware of the tensions and should consider exploring the 'space between' (Dwyer and Buckle, 2009).

On the one hand, I was an outsider to the participants, as I was a student in the field of education at a separate institution from the HEIs that were being studied. The outsider

position was obvious when participants took trouble to provide a lot of contextual and background information in explaining or describing their opinions and experiences during the interviews. On the other hand, I was a PhD student, and this role provided a personal touch to the study but also shaped my position as an insider. This was especially the case among the students, some of whom began to talk about the problems they had with their supervisors and departments, while some others diverted the interview towards asking about my experience of doing a PhD at Oxford.

In addition, my position as a student researcher in some ways contributed to a different dynamics in the interviewer-interviewee relationship. As Reinharz (1992) argues, minimising status differences between interviewer and interviewee is a potential way to avoid the 'hierarchical pitfall', which will enable greater openness and insight into the responses gathered in the interview. Hence, my position as a PhD student to some extent bridged the differences and levelled the status between my role as the interviewer and the role of the participants as interviewees. The perception of having 'equal status' may have enabled participants, especially students, to be more open in sharing their opinions, experiences and problems. As for the participants who were academics, my position as a PhD student may be perceived to be hierarchically lower, and thus it may have been seen as less threatening for the academics to share and talk about their role, involvement and opinions about the learning and development of their PhD students, in comparison with an interview with external evaluators or established researchers.

In recognising the potential insider-outsider tensions and hierarchical issues surrounding my position, I adopted a number of strategies to ensure I remained

neutral, open-minded and reflexive. I was particularly conscious of the need not to be judgemental. For example, I did not attempt to raise any of the concerns raised by a participant, directly or indirectly through the interviews, with the other participants. In addition, as a practical measure to prevent participants taking my 'insider' position for granted and to allow me to remain open-minded, I deliberately probed the participants and asked them to explain, describe and elaborate the points they made when they assumed that I understood what they were saying.

In terms of ensuring reflexivity, specifically in terms of analysing the data, Mays and Pope (2000) suggest that researchers should focus on the notion of sensitivity. Corbin and Strauss (2008) propose three practical advices to enhance sensitivity:

> The first is to always compare knowledge and experience against data, never losing sight of the data themselves. The second is to always work with concepts in terms of their properties and dimensions, because it keeps the researcher focused on the similarities and differences in events and prevents being overwhelmed descriptive data. A third point is that it is not the researcher's perception of an event that matters. Rather, it is what participants are saying or doing that is important (p. 33).

Taking onboard the advice to enhance sensitivity and reflexivity, I chose to remain grounded in the data, focused on the findings that emerged through comparing the similarities and differences and giving the highest priority to the perception of the participants throughout the analytical procedures. The intention was for me to remain neutral, open-minded and reflexive in negotiating my position both as a PhD student and a researcher examining the educational processes in the PhD.

3.10. SUMMARY

This chapter presents the research design and analytical procedure of this study. A case study design was chosen based on the nature of the research questions and the conceptual framework, and the methods used to generate empirical evidence were interviews and documents. Guided by the principles of selecting contrasting cases and informed by the literature on PhD education, six departments in three disciplines in four HEIs were sampled as case studies, and PhD Programme Directors, supervisors and students within these departments were identified as participants to be interviewed.

The analytical processes involved four major stages, which began with transcribing the interviews with PhD Programme Directors, supervisors and students, and compiling the relevant institutional and departmental documents. The second stage was coding, where both deductive and inductive approaches were used to code the data. In addition, definitions were developed iteratively alongside the coding process to ensure consistency. The third stage was to identify and frame the educational processes of the PhD within each of the six departments as a case study. Prior to the identification of the educational processes, a classification of the knowledge, skills and capabilities were developed. Using the classification, educational processes and their characteristics were then identified. The educational processes in a department were then summarised into a case study and presented in the form of a table. The fourth stage was to analyse each case study and to develop explanatory themes to answer the three research questions. These analytical procedures provided an account of the ways data was processed and analysed, which yielded the empirical evidence for this

study to answer the research questions and develop a better understanding of the research focus.

Overall, the aim of this chapter has been to provide a clear account of the ways in which the research design was developed and data was generated and analysed, enabling the research questions to be answered. It was intended that a clear description of the methodological processes would provide rigour and trustworthiness for the empirical evidence presented and add credibility to the findings, claims and arguments made by this study.

The next chapter will begin by examining the thesis and supervision and this examination will span the institutional, departmental, interpersonal and individual levels.

Chapter 4

Thesis and Supervision

This chapter examines two inter-related themes – thesis and supervision – and it is organised according to two foci. The first focus is the role of the PhD thesis in influencing the educational processes in the PhD. Although I argued earlier in the thesis that there has been a shift from thinking of the PhD solely in terms of the research output to a greater focus on the educational dimension of preparing researchers, the research output in the form of a thesis remains an essential part of the PhD and therefore of PhD education. The thesis continues to be seen as the 'test piece' that signifies the end product, and it is a major criterion used to determine whether a student should be awarded the PhD degree (Lee and Boud, 2009; Park, 2005). The other major consideration for examiners in deciding whether to award the PhD degree is performance in the *viva voce* examination. The thesis also plays an important role in the oral examination since examiners are expected to raise questions about the thesis and the student is required to defend it. This suggests strongly that successful completion of the PhD thesis is the yardstick of success in the completion of PhD education; the importance of this product thus has a major influence on the educational processes in the PhD. Therefore, I begin by examining how a PhD thesis is defined at the institutional level, the variation and complexities resulting from how the idea of a thesis is re-defined at the departmental level taking into account the norms of each discipline, and how supervisors and students understood the idea of a PhD thesis.

The second focus of the chapter shifts towards the supervisory relationship. Given the important role of the thesis in the educational processes in the PhD, it is to be expected that the supervisory relationship is closely intertwined with the thesis. Supervision is central to the educational processes in the PhD; it may be seen as pedagogy in the form of an apprenticeship, where students are guided as they conduct research under the tutelage of a supervisor, or more commonly a supervisory team. The primary aim of the supervision process is to support the student to produce a thesis that presents the research, demonstrates its contribution to knowledge and reflects the student's capability as a researcher. Thus, the second focus involves illustrating the ways in which and the extent to which the different ideas, interpretations and types of thesis lead to a wide range of activities which supervisors may use to support and guide students in the process of supervision. This vast range of activities begins to suggest the complexity underlying the process of supervision. Apart from these activities, the examination of supervision also includes understanding supervisors' ideas about research and how these ideas translate into tasks and strategies used in supervision meetings. Further to that, this focus also entails examining the factors which determine the usefulness of the supervision process from the perspectives of students and supervisors, the potential mismatch between these two groups of actors, and the related tensions within this interpersonal process.

The last section explores two strands of evolution in the supervisory relationship in the PhD, which have further caused the process to become more complex. The first strand of evolution is the prevalence of a supervisory team as opposed to a one-to-one supervisory arrangement, and the second strand involves a changing form of supervisory relationship. These two strands of development have arguably changed

the dynamics between individuals in the interpersonal relationship, and have further shaped the supervisory relationship to become much more complex.

Through examining the thesis and supervision process, this chapter seeks to illuminate in part the complexities in the educational processes in the PhD and how these complexities can influence the learning and development of PhD students in becoming researchers.

4.1. WHAT IS A PHD THESIS?

To understand a PhD thesis, it is useful to begin by asking the question "What is a PhD thesis?" To operationalise this question, I begin by examining how HEIs define a PhD thesis. As mentioned, although the higher education system in the United Kingdom has been relatively centralised (Coate and Leonard, 2002; Pole, 2000), every HEI in the UK remains autonomous and is able to organise and regulate its own PhD programme. This autonomy also includes specifying the regulations for the PhD within the *Framework for Qualifications of Higher Education Institutions* (QAA, 2001; QAA, 2008) provided by the Quality Assurance Agency (QAA) (see Section 1.5, p. 30).

The framework provided by QAA specifies minimum standards for PhD programmes across the higher education system. HEIs are then expected to interpret the policy prescribed framework and to develop institution-specific criteria and regulations. Each of the four HEIs examined in this study has developed its own criteria for the examination of the PhD. In the process of doing this, the HEIs outlined the criteria defining a PhD thesis in that particular university. Understandably there was both

consistency and divergence in these criteria, and the ways in which the requirements of the thesis were outlined varied across the four HEIs (see Table 4.1).

There were consistencies across the four HEIs in the requirements that a PhD thesis should make an original contribution to knowledge, demonstrate the student's ability to provide critical and independent judgement, and that the quality of the thesis is worthy of publication. These criteria are fundamental characteristics of a PhD thesis expected from students in outlining the 'worth' of the research and underlining their ability to conduct research.

However, there were subtle divergences in the characteristics across the four HEIs. For example, Keynes University explicitly stated that the thesis should not exceed a certain word limit and that the student should demonstrate his or her research skills. Three institutions – Keynes, Smith and Taylor Universities – provided a timeframe of three or four years as a way to manage the expectations and define the practicality, scope and scale expected of a PhD, while Hodgkin University had no time limit in the expression of the criteria. Smith University did not explicitly require the thesis to demonstrate the student's knowledge and understanding of the field of study, but this requirement was made explicit by the other three institutions. The ways in which the requirements of a PhD thesis were presented by the four institutions were very much in line with the findings of a previous study undertaken in this area. Tinkler and Jackson (2000) found that there was consistency across institutions in the "key criteria", but divergence in some other criteria.

Table 4.1. Requirements of a PhD Thesis Prescribed by the Four Institutions (taken from their Regulations)

Hodgkin University	Taylor University	Smith University	Keynes University
The Degree of PhD shall be awarded to a candidate who shall have presented a thesis on the candidate's advanced study and research which satisfies the Board of Examiners as: I. making an original and significant contribution to knowledge; II. giving evidence of originality of mind and critical judgement in a particular subject; III. containing material worthy of peer-reviewed publication; IV. being satisfactory in its literary and/or technical presentation and structure with a full bibliography and references; and V. demonstrating an understanding of the context of the research: this must include, as appropriate for the subject of the thesis, the scientific, engineering, commercial and social contexts. -DocH4, Hodgkin University-	A thesis for the award of PhD degree shall be examined in accordance with the criteria prescribed by Taylor University and the thesis shall demonstrate: I. is genuinely the work of the candidate; II. shows a student's capacity to pursue original research in the field of study based on a good understanding of the research techniques and concepts appropriate to the discipline; III. embodies the results of a research programme which may reasonably be expected of a student after three years of full-time study, formulated and carried out by the student in consultation with the Supervisors; IV. consists of a student's own account of their investigations, the greater proportion of which shall have been undertaken during the period of registration under supervision for the degree; V. represents a distinct and significant contribution to the subject, whether through the discovery of new knowledge, the connection of previously unrelated facts, the development of new theory, or the revision of older views; VI. shows the exercise of critical judgement with regard to both a student's own work and that of other scholars in the field; VII. is an integrated whole and presents a coherent	In determining a recommended result, examiners are required to consider the following: I. whether the form in which the thesis is presented is appropriate; II. whether the work presented by the candidate is such as might reasonably be expected as a result of three years' full-time postgraduate work; III. whether the candidate had shown that he or she is able to exercise independent critical power; IV. whether the candidate had demonstrated the ability to conduct an original investigation; V. whether the candidate's work contains an original contribution to knowledge; VI. whether the thesis is worthy of publication in its original or in a modified form. -DocS4, Smith University-	The scope of the thesis will be what might reasonably be expected after three or at most four years of full-time study. The thesis will: I. form a distinct contribution to the knowledge of the subject and afford evidence of originality by the discovery of new facts and/or by the exercise of independent critical power; II. give a critical assessment of the relevant literature, describe the method of research and its findings, and include a discussion on those findings, and indicate in what respects they appear to the candidate to advance the study of the subject; and so demonstrate a deep and synoptic understanding of the field of study; III. demonstrate research skills; IV. be of a standard to merit publication in whole or in part or in a revised form (for example, as a monograph or as a number of articles in learned journals); and V. not exceed 100,000 words (including footnotes but excluding bibliography and appendices). In appropriate

	argument; VIII. gives a critical assessment of the relevant literature, describes the method of research and its findings, includes discussion on those findings and indicates in what respects they appear to the student to advance the study of the subject; and in so doing, demonstrates a deep and synoptic understanding of the field of study, (a student being able to place the thesis in a wider context); objectivity and the capacity for judgement in complex situations and autonomous work in that field; IX. is satisfactory in its literary and/or technical presentation and structure with a full bibliography and references; X. takes due account of previously published work on the subject; XI. makes clear the sources from which information has been derived, the extent to which the work of others has been used, and the areas which are claimed as original; XII. contains an element which might, after any necessary revision, merit publication in a medium appropriate to the discipline; XIII. shows a student's ability to design and implement an independent research project. -DocT5, Taylor University-		circumstances the Research Degrees Subcommittee may grant permission for a thesis to differ from the normal length. The candidate should be able to: I. place the thesis in a wider context; and II. show objectivity and the capacity for judgement in complex situations and autonomous work in that field. -DocK1, Keynes University-

It is important to recognise that the criteria for the thesis presented by the four institutions have one major similarity. The criteria have been prescribed in a general manner despite the different degrees of elaboration, because a set of generic criteria is important for subsequent re-interpretation within the HEI by the different departments and their academics, students and examiners to incorporate the norms and cultures of their respective disciplines as they are shaping a PhD thesis. The opportunity provided by HEIs for departments, academics, students and examiners to re-interpret the criteria in certain ways reinforces the argument that PhD education is a form of socialisation of students into an academic discipline (Becher and Trowler, 2001; MacLachlan, 2014; Parry, 2007). Therefore, it is not surprising that HEIs have only outlined generic requirements for a PhD thesis, rather than describing the criteria in more detail.

4.2. RE-INTERPRETATION BY THE DEPARTMENTS

There was significant re-interpretation of the requirements prescribed by the HEIs. Across the six departments in the three disciplines, the generic requirements were re-interpreted and further operationalised into four distinctive types of PhD thesis in terms of structure, format and characteristics (see Table 4.2).

Table 4.2. Structure, Format and Characteristics of a PhD Thesis across the Six Departments

Department	Structure, Format and Characteristics of a PhD Thesis
Chemistry, Hodgkin University & Taylor University	• A coherent thesis that comprises a collection of experimental reports on a particular research problem or focus
History, Smith University & Taylor University	• A coherent long text of 100,000 words in the form of a monograph
Economics, Keynes University	• A thesis comprises three essays, and the essays can be independent and need not be related to each other
Economics, Smith University	• Students have the option to submit a monograph or three essays. The three essays have to be related to a particular topic.

The four types of PhD thesis reveal disciplinary differences in the way in which the PhD is conceptualised and described. In the two Departments of Chemistry, the thesis was thought of as a collection of experimental reports on a particular research problem or focus. As a supervisor described:

> [The students] have to provide this product which is a coherent thesis, which is going to be traditionally laid out, and some sort of introduction and two, three, four experimental chapters, which ideally should progress from one onto another without any clear breaks.
>
> -S2, Chemistry, Hodgkin University-

The empirical chapters typically present the findings of experiments which the students conducted during the course of the PhD. Some of the findings presented in the thesis may have already been published in scientific abstracts and journals, and may have been carried out collaboratively with peers, post-doctoral researchers or even the supervisor. This means that it is common for these theses to acknowledge that part of the empirical work may have been undertaken collaboratively with others

and may have been partly 'borrowed' by the student to construct his or her research problem and to make the argument.

In contrast, a thesis in the two Departments of History typically took the form of a monograph. Compared with the Departments of Chemistry, where the PhD research was undertaken in a laboratory and was usually part of a team investigation, a thesis in the Departments of History was entirely the work of the PhD student. Even the supervisor was not involved in the writing of the thesis, and students typically claimed ownership of the entire monograph. As D3 described:

> The thesis writing, basically you write one coherent long text of 100,000 words and these need to be a well-written text. ... The other thing is basically when you think about books, I mean the book writing itself comes after the PhD, [but] the PhD is usually the foundation for what is known as the scholarly monograph.
>
> -D3, History, Taylor University-

There were no differences between the two history departments and two chemistry departments in terms of the expected structure and format. However, interestingly, the structure and format of the thesis varied considerably within and across the two Departments of Economics. In the Department of Economics at Keynes University a PhD thesis comprises three essays, but the essays can be independent and need not be related to each other. Conversely, in the Department of Economics at Smith University a student has the option to submit three essays on a particular topic or a coherent and elaborated 'treatise-style' monograph.

The format of a three-essay thesis has become a discipline-norm in economics, especially in the United States (Stock and Siegfried, 2013), and Departments of Economics in the United Kingdom and elsewhere around the world have also increasingly begun to introduce this format into their PhD programme. According to

Professor S7, the idea of a three-essay thesis has been strongly driven by the tendency of the discipline of economics to focus on the "measurable"; the rationale is as follows:

> Because [in] economics, for promotion and advancement in the field, what people count up are journal articles in certain selected journals. That is until, maybe at the very end when someone is up for a Nobel Prize, but all the way the promotion prospects, the advancement prospects, prestige prospects, are based on almost just a sheer count of the number of articles you publish in the top journals. Now at the very end of that process, when places like Nobel Committee look back and said, "Well, who should we give the prize to?", they do take into account the collection of coherent ideas that would make someone a potential candidate for the prize, but up until that stage, for each step along the way, it is almost a mechanical count. I think that vision falls back into people's PhD training.
>
> -S7, Economics, Keynes University-

Although the format of a three-essay thesis is increasingly being seen as a discipline-specific feature, the two Departments of Economics have different interpretations and requirements of the format of the thesis, which may lead to different educational processes to support the development of their PhD students in producing the thesis. For example, on the one hand, although students in the Department of Economics at Smith University were able to choose the format of their thesis, the thesis focused exclusively on a particular research problem or topic. The underlying purpose of the research remains to advance the knowledge of a particular problem or topic, since the three essays of the thesis must be theoretically, conceptually or topically connected. On the other hand, although students in the Department of Economics at Keynes University are not able to choose the format of the thesis, which has to comprise three essays, students are not necessarily required to focus on one particular research problem or topic. The three essays can focus on three different problems, topics or methods, and can be independent of one another. Therefore, despite students of both departments completing a three-essay thesis, there were notable differences between

the purpose of the three-essay thesis, and these differences may lead to different kinds of educational processes between the two departments.

Clearly, the ways in which institutions define a PhD thesis and the ways in which departments incorporate disciplinary norms and cultures to redefine the format, structure and characteristics of a thesis have not only led to four different types of thesis. Importantly, the different types of thesis may also have significant implications for the ways in which supervision is conducted across these departments, as well as the activities involved in the supervisory process at the interpersonal level.

4.3. THE THESIS AND ITS INFLUENCE ON SUPERVISION

This section examines the ways in which the structure, format and characteristics of a PhD thesis in a particular discipline or department 'dictate' the supervision process in terms of the tasks, duration and strategies used by supervisors to guide their students towards producing a PhD thesis. While examining the influence of the thesis on supervision, the views and practices of students and supervisors in the supervision process also suggest their interpersonal and individual responses to the requirements and characteristics of a PhD thesis.

Variations between Disciplines: Departments of Chemistry and History

The PhD thesis in the two Departments of Chemistry involves a compilation of experiments, and the writing (or 'writing up') of the thesis is considered by supervisors and students as a process detached from the experimental work. There is a clear

demarcation in the course of the PhD between the tasks of conducting the experiments and writing the thesis, as illustrated by S2:

> At some point during the final year, what I like to do is, if it is a three-year PhD, I would sit down [with the student] at the end of the second year [and discuss], "How are you going to turn what you have done so far into a thesis?" Because you will always have ambitions for chemistry, but what you have got to decide then is where to limit the study this individual is involved in.
>
> -S2, Chemistry, Hodgkin University-

It was common across the two Departments of Chemistry for students to spend two or even three years in the course of their PhD without thinking about the writing of the thesis at all. The focus lies almost exclusively on conducting the experiments, since gathering the empirical findings is vital to the success of the research. After having 'generated' sufficient empirical data, students in the Departments of Chemistry devoted an average of three to six months to 'writing up' the thesis. The demarcation between conducting the experiments and writing the thesis is obvious: students stopped spending time in the laboratory towards the end of the PhD, and instead were writing the thesis at home or in the library. This demarcation was also obvious in the Department of Chemistry at Taylor University, which introduced the *Continuing Research Student Scheme* to extend the support given to students in terms of access to the department, library and other resources for an additional year for the purpose of 'writing up'.

However, two crucial questions emerged concerning this demarcation between conducting the experiments and 'writing up' the thesis: "Do students know when to move from one stage to another?" and "Who determines when this move will take

place?" These two questions are significant to understanding the role of supervision in developing a thesis.

The point expressed earlier by S2 indicated that he, as a supervisor, initiated the discussion with his student a year before the candidature period was up in order to move the attention of the student onto the writing of the thesis. S8 also advised her students to have a 'thesis plan' in their final year; setting up this plan involved identifying what the student had and had not done, and developing a strategy for telling a story in the thesis using the empirical data. While these two supervisors had explicit strategies to move their students towards developing a plan for producing the thesis, other supervisors did not describe explicit advice to their students to move from conducting the experiments into 'writing up' the thesis.

Conversely, although students recognised the two distinctive phases, the demarcation and when the move should take place was less clear. Students have to pick up 'clues' from their interactions with their supervisors. For example, students who were moving into the final year, instead of being told what to do by the supervisor, were expected to propose their own plans for conducting certain experiments. The students then considered the acceptance of their proposed plan by the supervisor as a form of progress in becoming an independent researcher, which also meant that they were closer to finishing the PhD. St15, who was in his final year, explained:

> Recently, I get to design my own research project. The way PhD works here is that you do see [the thesis] as a [collection of] paper[s] and each one of them are separate but related things. Now I am in my third year, I could come up with something of my own and that was what I was entrusted to do. I have been going out there and reading a lot of literature and

> presenting it to my supervisor and decide for myself what I want to research and if he agrees.
>
> -St15, Chemistry, Taylor University-

Apart from St15, the other students including, those in their final year, did not articulate explicitly when they should move on from conducting the experiments into writing the thesis. These students were waiting for their supervisors to give them a cue or tell them explicitly when to start writing the thesis, which also suggested that students do not have a clear idea about when to move on to the writing phase of the PhD. This further implied that students in the Departments of Chemistry, even in their final year, have not developed a full sense of independence in taking charge of what they have to do in producing a PhD thesis, and supervisors continue to play a major role in shaping the educational processes and providing support which students rely upon.

In contrast, the writing of a PhD thesis in the Departments of History is considered the main activity throughout the PhD. Here, writing the thesis was woven together as an inseparable aspect of conducting the research. The writing of the thesis was central throughout the three years of the PhD, and various chapters resembled the various developmental stages of the individual student. S13 described this process:

> I tend to let the first six months, [to do some] research, thinking, conceptualising the project and then once we get to the end of the first year, I begin to want to see draft introductions that clearly show knowledge of the wider reading and the research questions and where it is place in the historiographies. Then by the end of the second year, we tend to draw up a framework of when chapters are going to come in, quite systematically in the last year. By the end of the three years, we have got a draft of the thesis, hopefully with only minor things to sort out.
>
> -S13, History, Smith University-

Although students in the Departments of History did spend a considerable amount of their time conducting fieldwork in libraries and archives, the process of writing the thesis was deeply ingrained as part of an ongoing research process throughout the PhD. Unlike their peers in the Departments of Chemistry, there was a less clear demarcation for students in the Departments of History as to the period where they did their fieldwork and when they wrote the thesis.

The fact that the thesis in the Departments of History is wholly owned by the student means that the role of supervisors in the supervision process is significantly different from their counterparts in the Departments of Chemistry. Here, students have to take the initiative to develop their own 'thesis plan' from the beginning. At the beginning of his candidature, St18 sat down with S13 to work out a plan collaboratively, after which the supervision meetings revolved around the tasks and chapters they had agreed on in the plan. The supervision meetings of other students, notably St4 and St5, also revolved around chapters of their thesis, where the students were constantly writing a part of the thesis and the supervisors gave feedback when needed.

Clearly, the structure of a thesis between the Departments of Chemistry and History has resulted in different understandings and strategies used in the educational processes leading to the production of a thesis. The situation in the two Departments of History reaffirmed the argument raised by Kamler and Thompson (2006) that the term 'writing up a thesis' should not be used to describe a separate process, and that writing is an intangible part of the research process. However, this is not the case with students in the Departments of Chemistry, where there is a clear demarcation between the research and writing processes.

The importance of writing as a form of pedagogy in PhD education is further reaffirmed by the insights we can gain from examining the influence of the thesis on the supervisory relationship. Aitchison and colleagues (2012) argued that there is a need to understand how students are guided to write in the sciences and what kind of support supervisors should provide. While their study illustrated the complexities of the struggles that both supervisors and students encountered during the writing of the thesis, the findings contributed to the discussion of writing in the sciences by highlighting the importance of understanding the demarcation, and specifically, when the demarcation should take place, who decides and what kind of signal to provide. Without a clear demarcation, students may encounter problems of insufficient time and resources to write and therefore may compromise the quality of the thesis. The extension programme in the Department of Chemistry at Taylor University further reinforced the need to address the potential problem associated with the lack of clear understanding and structure for students in the Departments of Chemistry as they write their thesis, and allowed supervisors to give appropriate guidance on this important activity.

The notable differences between the characteristics of a PhD thesis in the Departments of Chemistry and History illustrated the role and influence of the thesis and its disciplinary norms in shaping the educational processes. It is also important to note that while the small sample of two departments in each discipline may not allow generalisation across disciplines, there were almost no differences between the understandings of academics and students within the two Departments of Chemistry and History.

The understanding of disciplinary differences of a PhD thesis, albeit only from two departments, and how theses influence the supervision process raised the importance of individual supervisors and students knowing their respective roles and expectations in the interpersonal supervisory relationship. These differences also illustrated the different levels of independence of students as they developed to become researchers. On the one hand, supervisors may need to articulate their expectations clearly and explicitly, knowing when to intervene and provide the right kind of support for their students. On the other hand, students may need to be aware of their own development in becoming a researcher, knowing when to begin taking charge in producing a PhD thesis

Variations within Discipline: Departments of Economics

While there were almost no differences between the Departments of Chemistry and History, there were substantial differences between the two Departments of Economics due to two different formats of thesis in this discipline. These two different formats within a discipline or department provided an important comparison to help us understand how students and supervisors see the ways these differences influence students' learning and development. The different formats led to different educational processes for the students. For students in the Department of Economics at Keynes University and students who opted for the three-essay format thesis at Smith University, the writing of the thesis was typically broken down into writing three separate essays. On average, students tended to spend about a year on a paper, and moved on to the next paper upon the completion of the first one. It was also common

for students to attempt to publish their individual papers during the course of the PhD. Conversely, for students in the Department of Economics at Smith University who opted to write their thesis in the form of a monograph, the process of writing a thesis was similar to that of their peers in the Departments of History.

Among the students who were working towards a three-essay thesis, as well as among their supervisors, the format of the thesis has a significant and positive influence on student development in three different ways.

First, the format of a three-essay thesis was considered by supervisors to provide their students with opportunities to develop the necessary skills and experiences of writing academic papers instead of books. As S7 remarked earlier, it was considered an important skill for economists in the academic community to be able to write academic papers in order to advance their career prospects. This point was reaffirmed by the PhD Programme Director, D1, who stated:

> Research in economics is very much centred around journal article publications. So pieces of work are typically paper length, rather than book length. Because a PhD student has to write three papers, they will get feedback from their supervisors on the writing and this will help to develop their writing skill.
>
> -D1, Economics, Keynes University-

A similar rationale can also be observed in the United States through Stock and Siegfried's (2013) study, which analysed PhD theses in economics in the US over a period of five decades. They found that PhD students who went on to do research and teach in academia tended to have written a three-essay thesis, while those who went on to work in policy and government-related jobs tended to have written a treatise-style monograph thesis. The strong relationship between the format of the thesis and the subsequent career destination of PhD graduates (in this research in the US)

illustrates the different skills developed in PhD students by writing the different types of thesis. In this respect, the Department of Economics at Keynes University has focused primarily on equipping its students with the capability to produce journal articles. By making the three-essay thesis the only format, this Department has highlighted the intention for its PhD programme to be geared towards preparing students for an academic career.

Second, the three-essay thesis format is also regarded an educational process that provides students with more than one attempt to develop a quality piece of work. The format provides students with three separate opportunities to develop their research capability, disciplinary knowledge and disciplinary skills, as explained by St13:

> Well, I guess it is useful in the sense that you don't get locked in a very narrow field or subject very early in your thesis. In economics, especially if you are interested in a career in academia, you just need one big idea during your PhD, one big 'job market paper', which is the one that you are going to be evaluated on when you look for employment in the university. And basically the fact that you need three papers suggests that you get three attempts at a good paper. Basically most of the PhD students in economics [in this department], we produce one good paper and two papers that are maybe not so good or at least not as good. So the fact that these three papers don't have to be related allows you to have three independent attempts at writing a good quality paper, which I think is quite helpful in that respect. There is always a lot of randomness in how good your idea actually is, that is when you get an idea, it might be a good idea, you always feel that it is a good idea if you are going to pursue it, but how good it actually turns out to be depends on the data. If you run empirical projections because you usually get your idea, then you get the data, then you see the results, and then you can tell whether this is actually an interesting paper or not. And so, basically, if you get the idea, you get the data, and then you find that your results are really bad and not at all conformed to your initial expectations, then it is not going to be a good 'job market paper', but it can still be a part of your thesis.
>
> -St13, Economics, Keynes University-

In comparison to the students in the Department of Economics at Keynes University, their peers in other disciplines and departments who had to focus the entire PhD

project on a particular topic or problem may only have one attempt to do so. For instance, students writing a monograph-style thesis would write the entire thesis once and have to submit it for examination. Even students in the Department of Economics at Smith University who has to write three related essays might not be able to fully use the writing of the three essays as three attempts to improve their work.

Third, the fact that the best essay in the thesis was called a 'job market paper' meant that students in the Department of Economics at Keynes University consistently related the 'job market paper' with employment. For academic-related employment, the 'job market paper' was seen as the evidence that the PhD student has undergone the educational processes supporting the learning and development of his or her ideas to the extent required to conduct research of a certain calibre. For non-academic-related employment, the ability to produce three essays on different topics or methods suggests that the educational process has helped the student to develop a wide breadth of economic knowledge and enabled them to tackle more than one problem, as well as be versatile with multiple skills in order to approach different methods of research.

The three points raised, especially the first and third, highlighted potential tensions and mismatches. In the first point, raised by both the PhD Programme Director and academics, the Department of Economics at Keynes University considered that the introduction of the three-essay format was a way for the students to develop their academic writing skills, exposing them to academic publication and preparing them for an academic career. As summarised by the PhD Programme Director (D1), "Academia is what the academics know best, hence, we tend to be better to place students in

academia rather non-academic sectors." On the other hand, although students may partly concur with the ideas of their supervisors and the department, they also considered the three-essay format to be a way to prepare themselves for the different careers to which they aspired, not necessarily limiting them to an academic career. The subtle differences between academics and students, even in terms of the usefulness of the three-essay format, have implications especially for the supervisory relationship and the activities involved in producing the thesis. If these subtle differences can be regarded as a form of mismatch, we may be able to hypothesise that this mismatch may lead to tension in the educational processes between the actors involved.

Furthermore, while students may consider the three-essay format to provide three opportunities to produce a piece of quality work – the 'job market paper' – this perception was not expressed by any of the supervisors. To the supervisors, the expectations of the three essays are equal, and hence they may not view the three essays as three attempts to produce a quality piece of work with two other essays potentially not being up to the mark. Moreover, the views of examiners may also be different from those of the students. According to S12, examiners have the liberty to decide whether the three essays should be of the same quality, or whether they will accept two essays that may be slightly inferior in terms of their quality in comparison to the 'job market paper'. She described the role of examiners as follows:

> The examiners in the PhD viva are completely free of the evaluation method. They can decide to evaluate the 'job market paper', and then the other two papers are very preliminary. Or they can be particular to say, "We want three papers that are completely finalised", and then they ask the student to make revisions to the preliminary papers because they really want to see the thesis as a finished product in four months. The examiners are very free to do what they think is appropriate.
>
> -S12, Economics, Keynes University-

While examiners may have liberty to decide how the three essays are evaluated and supervisors did not explicitly express the perception that the three essays could be considered as three attempts at a quality 'job market paper', students clearly had this perception, which may in some ways indicate a mismatched expectation. Students, who believe that a three-essay thesis can allow two of the essays to be slightly inferior to the 'job market paper', may encounter problems in meeting the expectations of their supervisors and examiners in producing the final product of a PhD thesis. Again, such mismatched expectations can create tensions in the supervisory relationship and the educational processes of the PhD.

Summary

Clearly, the format, structure and characteristics of a PhD thesis have a significant influence on the supervisory relationship in determining the tasks, duration and strategies used by supervisors to guide their students as they produce a PhD thesis. However, the influence varied across the Departments of Chemistry, Economics and History. The influence of a PhD thesis on the supervisory relationship was also complex, as the influence was not only driven by disciplinary cultures and norms, but equally by the interpretations and ideas of individual students and supervisors who were participating in an already complex interpersonal supervisory process. However, a recognition of the major influence of the PhD thesis in shaping the supervisory relationship is important in extrapolating various factors that shape the complex supervisory relationship. The following sections will examine the complexities of the supervisory relationship in the PhD.

4.4. SUPERVISORS' IDEAS ABOUT RESEARCH CAPABILITY AND ITS INFLUENCE ON SUPERVISION

Apart from the variation in terms of the tasks, duration and strategies leading to the production of a PhD thesis across the six departments, the ways in which research is understood by the supervisors also influences the supervisory relationship. Specifically, the conceptualisation of research skills and capabilities among supervisors may differ considerably even within a department, and these differences can lead supervisors to introduce a variety of tasks and strategies in helping their students to develop research skills and capabilities to conduct research, produce a thesis and become researchers.

However, before examining supervisors' conceptualisation of research capability, it is important to note that in one way or another, all the supervisors who participated in this study regard research capability to be the most important element to be developed by the educational processes of the PhD. Thus, in order to further understand the conceptualisation of research capability, I have attempted to explore how supervisors describe the research capabilities that are expected of their students. Similarities and differences in the perceptions of supervisors within and across the six departments underlined the influence of individual factors in shaping the complex supervisory relationship. Across the six departments, there were major similarities across the two Departments of Chemistry, although there were also subtle differences, but there were vast differences within and across the Departments of Economics and History.

On the one hand, supervisors in the Departments of Chemistry related research capability to the competencies of a scientist. In general, research capability was

referred to by supervisors in the Departments of Chemistry as the ability of students to become an independent scientist, with a wide breadth of knowledge in chemistry, capable of conducting research systematically and applying the relevant methodology, tools and instruments, and able to communicate the findings of their research through writing and/or presentations. In this regard, supervisors across the two departments tended to share more similarities than differences, and any differences were subtle; for example, some emphasised the importance of skills in using a certain instrument or method over disciplinary knowledge, while some considered laboratory skills to be more important than writing skills.

On the other hand, supervisors across the four Departments of Economics and History revealed significant differences in their ideas about research capability. For example, in the two Departments of Economics, there were at least four major ideas held by supervisors regarding what they saw as research capabilities. First, there were supervisors who considered research capability to be more congruent with intellectual abilities, such as analytical skills:

> When you write a research piece, you have to be sure what you are saying is consistent. And when you do that, you need to think about the step by step of what you are doing. So in that process you developed these skills and you ask yourself if what you are doing makes sense, if the argument is logical, if it is correct, then you try to formalise it or develope it in such a way that it is robust and coherent. So, that is the process that they call research that helps develop the skills. But there is no specific tool that magically develops things, but of course, you need to have such activities that are able to stimulate, and then it is the interaction in which you give some inputs and hopefully the person gets back with some answers and some output.
>
> -S4, Economics, Keynes University-

S4 further illustrates the way in which he stimulated the development of analytical skills in his PhD students, as well as disciplinary knowledge. His strategy included

interacting and discussing in a dialectic manner with the students about research, their thoughts, ideas and approaches, as well as from reading the work produced by the student after their discussions to see whether the students had grasped the discussion. S17 strongly concurred with S4 that the most important skills a student should develop in the course of their PhD were analytical skills and not the subject matter. S17 suggested that with analytical skills a researcher can tackle any problem in the discipline, not remaining confined to the topic of the thesis. To help her students develop analytical skills, S17 challenged her students to try and use different materials, think outside the box, and come up with decisions that were unconventional and not commonly found in the textbook or the previous literature.

Second, there were supervisors who considered research capability to be more closely related to disciplinary skills, where research capability referred to the technical ability to conduct research. For example, S12 described the ways in which PhD students could develop their research capability and disciplinary skills by rote learning:

> By trial and error. Just try, like repeatedly solving similar problems. For example, with examinations where you are trained in some particular discipline for a year to solve similar problems and methodologies.
>
> -S12, Economics, Keynes University-

As the discipline of economics becomes more technical and focused on tools and techniques, there has been a tendency for PhD programmes to move in this direction. The account of S12 reflected this trend towards an emphasis on developing the technical expertise of students.

Third, there were supervisors who understood research capability as the ability to identify a research problem that needed to be explained, and to acquire an answer to the problem. S14 suggested that this ability is not only confined to disciplinary

knowledge, for example about economics; rather, it should transcend across disciplinary or professional boundaries. Moreover, there were also supervisors who considered research capability to be the ability to learn independently. S15 explained that a researcher is expected to be an expert on a particular subject. However, more importantly, the researcher should possess the capability to discover new knowledge in the field of his or her specialisation.

Fourth, besides emphasising one particular aspect of research capability, an experienced supervisor (S7), who was formerly the Head of Department of Economics at Keynes University, argued that there is a need for supervisors to strike a balance between the different elements involved. For example, he considered research capability to encompass both the technical aspects of economics as well as the ability to think analytically and critically about the subject:

> Well, I hope they get a little bit of both the technical expertise and the presentation skills on the one side, but also an appreciation for what the over-arching big picture ought to be. It will be different in their time from what the big picture now is, but I hope that they get an appreciation of that, and it is not just solving technical puzzles. They have to do the technical puzzles if they want to get ahead in their profession for the first few stages, but I hope they get an insight into wanting to do something more than just that. [In order to strike a balance], that is a very difficult question to answer because there are different levels which you have to address. One is just to be clear in my own mind what the right balance is. Second is being able to express that in such a way that [PhD students] don't misunderstand, that they don't think one versus the other. I think different academics approach these problems differently. For myself, what I try to do is set an example, try to continue to do technical work, but at the same time try to be able to speak to this larger over-arching picture. And I hope that by learning from that example, [my PhD students] will know how to take things forward.
>
> -S7, Economics, Keynes University-

The accounts provided by the six supervisors in the two Departments of Economics illustrate a wide spectrum of understanding of how they define research capability,

summarised in Table 4.3. Arguably, there is no right or wrong definition of research capability. The different understandings illuminate the range of skills and capabilities involved in conducting research, and the skills and capabilities described by a supervisor may suggest what he or she considers should be the focus of learning at the PhD level. Importantly, these different conceptual understandings have led supervisors to approach supervision in different ways and to use different tasks, activities and strategies to help and guide their students.

Table 4.3. Six Supervisors from the Departments of Economics at Keynes and Smith Universities – Their Understanding of Research Capability and Their Approach to Supervision

Department of Economics at Keynes University	**Supervisor**	**S4**	**S7**	**S12**
	What is Research Capability?	Analytical skills	Conceptual understanding of economics, technical skills	Technical skills
	Ways to help students develop research capability	Discussion and interaction in a dialectic manner	Give equal emphasis to developing technical skills as well as conceptual understanding; used himself as an example	Repeated practice
Department of Economics at Smith University	**Supervisor**	**S14**	**S15**	**S17**
	What is Research Capability?	Ability to identify research problem	Ability to develop new knowledge independently	Analytical skills
	Ways to help students develop research capability	Did not mention	Discussion and conversation	Challenge students to try and use different material, think outside the box

Besides the Departments of Economics, supervisors in the Departments of History also had different conceptualisations of research capability. From the accounts of four supervisors and a PhD Programme Director, there was more than one way in which supervisors described research capability (see Table 4.4).

Table 4.4. Five Academics from the Departments of History at Smith and Taylor Universities – Their Understanding of Research Capability and Their Approach to Supervision

Supervisor (HEI)	D4 (Smith)	S3 (Taylor) & S16 (Smith)	S6 (Taylor)	S13 (Smith)
What is Research Capability?	Having an independent voice and a distinctive story to tell	Demonstrate an effective grasp of the field, technical skills	"Ability to go right to the bottom of a problem and push the subject until it can't be pushed anymore"	Ability to construct a coherent argument based on archival research and empirical approach
Ways to help students develop research capability	Expose students to conferences and seminars	Did not mention	Constant guidance from supervisor	Dialectic discussion

Although there were significant differences between the ideas of supervisors across the Departments of History, the differences were less contrasting in comparison with their colleagues in the Departments of Economics. The ideas about research capability among supervisors in the Departments of History did not contradict one another, but instead can be seen as different levels of elaboration used to illustrate the ability to conduct research. For example, S3 and S16 highlighted the need to demonstrate an understanding of histography and technical skills. However, the ideas of D4, S6 and S13 can be considered an extension to S3's and S16's ideas. In addition to technical ability and understanding of the subject, research capability also involved the ability to

enhance the understanding of the subject (S6), argue about the subject (S13), and communicate findings from the research effectively (D4).

Perhaps due to more subtle differences in the ideas about research capabilities from the supervisors in the Departments of History, the tasks, activities and strategies used by these supervisors to support the develop of their students' research capability were much more uniform. Most of the activities and tasks revolved around the supervisor engaging with the student in dialectic discussion.

The accounts of supervisors across the six departments in three disciplines provided a diverse picture of how supervisors conceptualise the concept of research capability. It can be concluded that across the six departments, the understanding of research capability is the most diverse in the two Departments of Economics, followed by the Departments of History, and the Departments of Chemistry have an almost homogeneous understanding. Bills (2004) argues that such individual ideas may often differ from the ideas of other actors and have implications for the supervisors' development and the learning and development of their students. The idea of research capability, which all supervisors agreed to be the most important capability required in the PhD, has been understood and conceptualised in more than one way, and the diversity of these ideas has been operationalised into a variety of tasks and strategies to guide students in becoming researchers.

Although students' conceptualisations of research capability are equally important, this finding is not discussed in this section. Instead these findings will be explored in Chapter 6, as students tended to strongly associate the development of their research capabilities with the notion of employability.

Nonetheless, the diverse understandings of research capability among supervisors have two important implications for supervision. First, the diverse understandings point to the need for a systematic examination, and the fact that the concept of research capability may not be as homogeneous as assumed by those who are not directly involved in the process. Second, this diversity has direct implications for the supervisory relationship since the different ideas of supervisors will translate into different tasks and activities in the process of supervision, which further lead to a complex educational process in the PhD. Hence, understanding the complexity of the PhD supervision process requires understanding the diversity of the tasks and activities that make up the process, as well as the underlying ideas of supervisors about what they consider to be the most important aspect of PhD education, which is the development of research capability. While there was little consistency in the understanding of research capability among supervisors, this does not mean that supervisors are not effective in supporting and guiding their students. Instead, to enable supervisors to be more effective, they should be clear about what they understand research capability to be, and how to convey this explicitly to their students.

4.5. STUDENTS' AND SUPERVISORS' PERCEPTIONS OF USEFUL SUPERVISION

The format, structure and characteristics of a PhD thesis influence the supervisory relationship in terms of the activities used by supervisors to guide their students in conducting the research and producing the thesis. It is also clear that thesis and research are the main features in a supervisory relationship. Furthermore, we also

know that supervisors' ideas about research capability have a significant influence on the types of activities undertaken in this interpersonal relationship. However, without understanding the perspective of both students and supervisors about what they consider to be useful supervision, our understanding of supervision as an educational process in the PhD is incomplete. In this section, I will first examine the perspective of students, followed by the perspective of supervisors, and then compare these two groups of actors in terms of what they consider to be useful supervision.

Students

From the perspective of students, the usefulness of supervision as an educational process is concerned with the notion of 'frequency'. Across the six departments in three disciplines, each of the departments and disciplines had different norms for what they regard as frequent supervision, and the frequency also varies considerably across supervisors. However, despite these differences, a frequency of supervision in which students are able to access adequate support remains important in influencing the perception of the usefulness of supervision from the perspective of students.

The most frequent supervision across the six departments was found in the two Departments of Chemistry. In general, supervisors and students in a Department of Chemistry tend to meet and interact with each other on a daily basis – for example:

> My supervisor, [I see him] maybe three or four times a day. He comes and asks me how it is all going, if I have got anything new, or suggests something that I could do. I think that helps an awful lot, [and] the conversations you have on a day-to-day basis concerning work, I think that is good in helping you [to] think outside the box.
>
> -St6, Chemistry, Hodgkin University-

It is not surprising that the supervisory encounter is the most frequent in the Departments of Chemistry, given the way in which the PhD programme is structured, based predominantly in a laboratory where a student becomes a member of the supervisor's research group. Typically, these PhD students are also 'employed' by the supervisors to conduct research leading to the PhD, an arrangement which I will discuss further in the next section. Furthermore, the research of the students in the Departments of Chemistry also tends to be a part of a larger research project run by the supervisors. Therefore, it is common for students in Departments of Chemistry to have frequent interaction with their supervisors concerning their research. At the same time, supervisors have an added incentive to meet their students more frequently and to ensure their students succeed in carrying out the research, since the progress of the student has direct implications for the work of the supervisor. In addition, the ways in which students in the Departments of Chemistry described a supervisory encounter suggest that these frequent encounters were informal. Daily interactions and discussions between the supervisor and the student about their research work can also be considered as a form of supervisory encounter, which is not necessarily confined to the idea of a more formal meeting. Perhaps due to these reasons, there was only a small variance in the frequency of supervision across the two Departments of Chemistry, whereby a large majority of students and supervisors who participated in this study met on a daily basis on average.

Although supervision in the Departments of History and Economics might not have been as frequent as in the Departments of Chemistry, the frequency of supervision remained an important factor in determining the perceived usefulness of supervision to students. However, there seems to be a wider range in terms of the frequency of

supervision across these four departments. This wider range can be attributed to the fact that students and supervisors in the Departments of Economics and History worked on different research projects and did not require shared facilities such as laboratories to conduct their research. Hence, the wider dispersion of supervision across supervisors and students in the four departments, and the contrasting examples, clearly illustrate the ways in which the frequency of supervision influences the usefulness of this process to the students. To substantiate this argument, I will examine two extreme examples of supervisory relationship in the four departments.

At one extreme, frequent supervisions happened once a fortnight and almost without fail through the duration of the PhD. The supervisor demonstrated not only a commitment to meet his student every fortnight, but also showed a high level of pro-activeness in making sure his student was consistently engaged. This frequent supervision contributed to the positive influence on the learning and development of the student, as well as the progress of his or her research project. As St10 described:

> I have a very proactive supervisor in the sense that he makes sure that he sees me, like all of his supervisees, every fortnight even if it is only for half an hour. Because he sees me so frequently, his role is mainly just to keep a check on my progress and to give continual feedback and advice and a little bit of input on what I can do, what I have to take note of, what is less interesting that is not quite worth pursuing, or [whether] I am going in quite the right direction.
>
> -St10, History, Taylor University-

On the other hand, infrequent supervision occurred where a student had difficulties in meeting the supervisors and did not get adequate advice, support and guidance. This infrequent supervision was not only about difficulties in meeting the supervisor when needed, but also the view that this infrequent supervision also involved a lack of timely feedback on the work produced by the student. Infrequent supervision could therefore

have detrimental consequences for the learning and development of the student and the progress of his or her research project, as shared by St20:

> I don't know about other students, but from my own experience, the quality of supervision is not perfect because one thing is I have no chance to meet the supervisors whenever I want. I need to get an appointment and I need to wait for two to three months to get an appointment. … When I sent them my chapters, they have no time to correct them and they only sent it back to me after three of four months later. … Comments and feedback are important, and if not, it is really difficult to move on.
>
> -St20, Economics, Smith University-

In comparison with St10, the experience of St20 may have been an extreme counter-example, where the one-to-one relationship between St20 and her supervisor was sporadic and almost non-existent. Putting aside departmental and disciplinary differences, the accounts of these two students highlight not only the extreme examples of the frequency of one-to-one interactions between student and a supervisor; equally, these examples also illustrate the level of pro-activeness and keenness to participate on the part of a supervisor and a student, which can influence the quality of supervision and the student's learning and development. In this case, the supervisor of St20 has demonstrated a lack of interest in supervising her or her work, and had no intention to schedule frequent meetings to check on her progress.

It is important to note that the one-to-one interaction of supervision is often considered the most important educational process in the PhD, specifically in the PhD programmes across the six departments which centred on a student supervised by a supervisor or a team of two supervisors. Not only are infrequent supervision meetings not useful to the student; more seriously, infrequent supervision may potentially hinder a student's learning and development in the PhD. Furthermore, although a supervisory team may improve and address problems of infrequent supervision as a

form of check-and-balance, in actual fact, without a clear supervisory team setup students may even encounter more severe problems with infrequent supervision. Supervisory teams will be discussed in a later part of this chapter.

Interestingly, in circumstances where a student did not manage to draw upon the support of his or her supervisor due to infrequent meetings, other processes were explored and relied upon to help them. For example, in the case of St20, instead of having the support of her supervisor to guide her in conducting research and producing her thesis, St20 had to rely on attending conferences that involved other academics and peers, and for these other actors to guide and support her informally:

> I found some conferences in my area of research from searching on the internet. … I got most of the comments [about my thesis] from going to conferences. I submitted three chapters as a paper for conference and they read the paper and gave some comments. That is how I developed my thesis chapters.
>
> -St20, Economics, Smith University-

Unlike most of the students, attending a conference and gaining feedback provided additional support to help this student develop as a researcher. For St20, attending a conference became the main alternative source of support due to the difficulty and infrequency of meetings with her supervisor.

Thus, from the perspective of students, the contribution of a supervisory relationship as an educational process in the PhD is significantly influenced by the notion of frequency, and concurrently, it is also underlined by the pro-activeness and keenness to participate on the part of both supervisors and students.

Supervisors

Interestingly, from the perspective of supervisors, it is the notion of 'involvement' which underlines the educational process of a supervisory relationship. This notion relates to the question: "How involved is a supervisor in the supervision, and in what ways does an involved supervisor influence the educational process?"

An examination of the accounts of supervisors across the six departments suggests that there were four dimensions along which a supervisor may conceptualise his or her involvement in the supervisory relationship. Exploring these four dimensions of involvement also highlighted not only the influence of institutional, departmental and disciplinary factors, but equally, the individual characteristics and personalities of the supervisors.

First, the supervisor may consider his or her involvement in terms of regularity. Such involvement was typically about having frequent one-to-one supervision meetings of a regular and fixed duration:

> [Supervision] is much more organised [now]. I remember what my supervisor said to me at the beginning of the first term [in the 1960s]: "Well, it would be good if you show me something in a few months." Whereas with my students, I see them every fortnight in the first year. And then in the second year, maybe once a month, and then the third year, maybe once a month or every six weeks. I am keeping a much closer eye on them. I am working with them.
>
> -S3, History, Taylor University-

Like S3, S6 is another supervisor who insists on meeting his PhD students on a fortnightly basis. St10, the student who spoke about very frequent supervision in the earlier section, was S6's supervisee. Interestingly, both S3 and S6 were considered by the PhD Programme Director (D3) of the Department of History at Taylor University to

be the most successful supervisors in the department, and they had successfully supervised the highest number of PhD students to completion. It is certainly not a coincidence that these two supervisors adopted a highly involved approach to supervision, whereby supervision meetings with their students were organised on a regular basis. Although it is a norm for supervisors and students in the Departments of Chemistry to meet on a daily basis and to discuss the research project, supervision meetings on a fortnightly basis in the Departments of History and Economics were considered to be very frequent, since the norm is mostly every four to six weeks. This involved approach of having frequent and regular supervision meetings highlighted the individual decisions of these supervisors and demonstrated their personal beliefs in the importance of frequent and regular supervision in guiding and supervising their PhD students.

Second, a supervisor may consider his or her involvement in terms of their level of participation. For example, a supervisor may approach supervision with the idea that it is a joint process that requires active participation from the students. S2 considered the student to be a collaborator, and the supervision and experiments were seen as joint activities where both collaborators had to contribute and play an active part. He described this collaborative relationship as follows:

> My attitude to the people working in a group of students is not that they are students, but collaborators. We work on our chemistry together. You don't work on your chemistry and you don't work on my chemistry. We work together on a particular problem or a particular aspect.
>
> -S2, Chemistry, Hodgkin University-

While the approach of S2 may have been the norm in the Departments of Chemistry where supervisors and students tended to work on a similar research project and

easily considered their relationship to be one of collaboration, supervisors in the Departments of History and Economics also demonstrated their involvement by having a strong and meticulous interest in the work of their students, without necessarily having co-ownership of the research project. In this respect, S6 argues that:

> … when a student hands in some work, you need to read it and return it quickly rather than sitting on it for a long time. If you want the student to finish their degree fast, it sets a good example if you get through your own material fast.
>
> -S6, History, Taylor University-

However, an involved approach to supervision in this regard may imply that a supervisor has to devote a certain portion of his or her time to the work and research of the student. S15, who considered herself to be a 'control freak' when it came to supervising her student, was an example of a supervisor who adopted an involved approach to supervise her students, where she devoted a lot of the time to reading through the work produced by her students and gave them advice on improving the work.

While devoting time to the student's work and research is one of the characteristics of an involved supervisor, the time factor was a valid reason why some supervisors could not be more involved with the work of their student. Typically, supervisors have to juggle their time, not only supervising PhD students but also undertaking teaching responsibilities, administrative duties and grant and funding applications, as well as writing papers for publication. It was these time constraints that led some supervisors to take a less involved approach in supervising PhD students. One of the ways in which supervisors became less involved in the supervision was to delegate part of the responsibility of supervising PhD students to others; this was particularly common in

the Departments of Chemistry. The delegated responsibilities were entrusted to post-doctoral researchers or more experienced PhD students in the laboratory or research group, as illustrated by S9:

> When I was younger and less busy, I used to get into the laboratory myself and show the students how to do it [the experiments]. But now it is virtually impossible to do that. So what I try to do [now] is assign a new PhD student to a more experienced PhD student or post-doc in the laboratory. They will sit down and come up with the research idea. I will normally have written the proposal for [the project], so I will sit down [with them] and come up with an initial target of what I would like them to try. Then I will try to meet every single week with everyone in my group individually for half an hour. But then I will go up to the laboratory, hopefully every day, just to check how things are going and see what happened.
>
> -S9, Chemistry, Taylor University-

From the account of S9, as a result of time constrained by juggling multiple tasks and responsibilities, this less involved approach to supervising PhD students has seen her role evolve from directly supervising PhD students to overseeing 'secondary' supervisory relationships between post-doctoral researchers or more experienced PhD students and new PhD students. However, while it may be possible for supervisors in the Departments of Chemistry to delegate their supervision responsibilities to other members of the laboratory or research group, a less involved approach to supervision in the Departments of Economics and History may result in severe problems for the students, because such delegation would be impossible and result in infrequent and less involved supervision.

Thus, to some extent the choice between being an involved supervisor with a meticulous and strong interest in the work of the student and being a less involved supervisor also demonstrated the concurrent influences and tensions that emerged from institutional, departmental and individual factors. The institutional and

departmental factors, such as the different tasks and responsibilities of supervisors and their relative priority, and individual factors such as the personality, attitude and keenness to participate of the supervisor, may collectively affect the involvement of a supervisor. The professional status of the supervisor as reflected by their administrative position may also have influenced the level of involvement of the supervisor – for example, in the case of S9, who until relatively recently was the PhD Programme Director of the department.

Third, for some supervisors, the notion of being involved would have meant and required them to instil an element of authoritarianism into the supervision and the supervisor-student relationship. For example:

> I have seen very aggressive [supervision] style. There are supervisors who think that shouting at their students and having them live to a degree in a climate of fear is the way to get the best out of them.
>
> -S1, Chemistry, Hodgkin University-

Although the example illustrated by S1 may have been peculiar to the Departments of Chemistry, where PhD students typically work in the laboratory under the close supervision of the supervisor, the authoritarian supervision approach was also present in the other departments and disciplines:

> I am very strict with my students. I always said to them, "First of all, when you decide to come and do a PhD, you [need to] understand that for four years, you have to live with the supervisor. It is almost like a marriage and you have to make sure that you trust the supervisor and do not consider the criticisms of your supervisor as an insult." … The process that I scrutinise them is quite intense and I am quite strict.
>
> -S17, Economics, Smith University-

Using the analogy of a marriage, S17 illustrated the supervisor-student relationship like that of a husband and wife. She argued in favour of the need for authoritarianism on the part of the supervisor ('the husband') in helping and guiding the student ('the

bride') to change from a girl into a 'young wife' in managing and assuming the various responsibilities in the household. Although the metaphor has a strong paternalistic and culturally-biased view, it nonetheless illuminated the authoritarian idea that a supervisor may have in conceptualising the supervisory relationship and the educational process of supervision. More importantly, the authoritarian dimension of being an involved supervisor highlighted the significant influence of individual factors, such as the personal, social, cultural and educational background of the supervisor, on the supervisory relationship.

Fourth, having an involved approach to supervision may also entail understanding the needs of the student and tailoring the supervision in a flexible manner for each student. As D5 argues, it is important for supervisors to understand the fact that every student is unique and therefore their approach to supervision should not be homogeneous:

> I think sometimes it is important to realise you can't supervise all students in the same way, because it is all down to personality as well. Different students need more supervision and expect more in terms of hand-holding compared to others, and I think not all supervisors always respect that. I think that is important.
>
> -D5, Chemistry, Taylor University-

Instead, supervisors have to adopt a flexible approach according to the needs of the student. Other supervisors (S11 and S5) also argued that taking an involved approach to supervision required them as supervisors to understand the individual student, how much input he or she needed, and the ways in which he or she approached the research project. It is only with such understanding that a supervisor can supervise their PhD students more effectively.

However, there were also supervisors who were less involved and often took a hands-off and sometimes laid-back approach to guiding and advising students. There was only one explicit account from a student (St20) about a less involved supervisor, which was discussed in the earlier section about the infrequent supervision meetings, with the student not getting feedback from her supervisors and having to explore other processes such as conferences to help her make progress with her research. However, there were other instances that highlighted less involved supervisors, albeit implicitly. For example, supervisors in a Department of Chemistry (S8 and S9) shared the difficulties of juggling between the multiple tasks and responsibilities and reported that they therefore had to delegate the responsibility of supervising PhD students to post-doctoral researchers or other more senior PhD students. Other than these examples, there was limited evidence to illustrate less involved supervisors who took a hands-off and laid-back approach to supervision.

As Denicolo (2010) argues, supervisors should constantly re-think the purpose of the PhD and develop their skills in order to supervise more effectively. This re-thinking of the purpose of PhD education by supervisors should also incorporate thinking about the most appropriate and effective way to supervise their students by meeting the purposes they have in mind. Hence, the importance of recognising the needs of individual students and having flexible yet effective approaches to supervision suggested that the professional development of supervisors should equip them with this understanding and the knowledge, skills and capabilities to apply it in their supervision. Furthermore, because of the fact that 'secondary supervision' was becoming a norm in the Departments of Chemistry, the professional development of supervisors should also equip them with the know-how to manage such forms of

supervision, as well as post-doctoral researchers or even PhD students who are more advanced in their candidature, who may need to be guided and trained to provide 'secondary supervision'.

The Comparative Viewpoints

While the one-to-one supervisory relationship is an important educational process, this study has gained a better understanding about this process from the individual perspectives of students and supervisors. To the students, the usefulness of supervision to their learning and development was largely influenced by the frequency of supervision. Although supervision is an important process, in circumstances where the supervision did not meet the needs of the students, such as infrequent meetings with supervisors or not getting adequate feedback on their work, students explored other educational processes to help them progress with their research work.

To the supervisors, their participation and contribution to the supervisory relationship was influenced by the notion of involvement. By examining the different ways in which an involved supervisor approaches the supervisory relationship, it was found that the factors that influenced the selection of an approach by a supervisor were more closely related to the personality of the supervisor, rather than the nature of their research or the ways that PhD research was organised in their department or discipline. On top of that, time constraints and the ability to juggle the different responsibilities of an academic also highlighted departmental and institutional factors, which may further influence a supervisor's involvement in supervision.

4.6. AN EVOLVING SUPERVISORY RELATIONSHIP

From examining the influence of the thesis on supervision, the conceptualisation of research capability among supervisors and the perspectives of both students and supervisors about usefulness and involvement respectively, it is clear that the supervisory relationship is a complex educational process in the PhD. However, despite the complexity underlying this process, the supervisory relationship can also be seen as a rather unique process in PhD education. Since its inception, the supervisory relationship has been a major process in the PhD, but this process has changed and evolved over the years. Hence, this section will examine a changing form of supervisory relationship from two perspectives: first, the emergence of a supervisory team; and second, the changing form of the relationship between a PhD student and a supervisor.

A Supervisory Team

The Quality Assurance Agency (QAA, 2004) in the United Kingdom, in ensuring academic quality and standards in PhD education, recommended the importance of establishing systematic and clear supervision arrangements for PhD students. One of the suggested approaches was for each student to have a minimum of one main supervisor, and for the supervisor to be part of a supervisory team. Across the six departments, each department had different approaches and regulations concerning the arrangement of supervisors, and each student and each team of supervisors also had different ways of organising and conducting the supervision process. These differences shaped, and to some extent changed the supervisory relationships

between a student and their supervisors. On the one hand this may enhance the quality of supervision, but on the other hand it may also create tension and problems in the relationship.

Three of the departments had put in place a rather clear structure of regulations and mechanisms for having more than one supervisor to supervise PhD students. The Department of Economics at Keynes University assigned at least a supervisor and an advisor to each PhD student, where the supervisor was responsible for guiding the research of the student and ensuring the progress of the student's project, and the advisor provided additional pastoral support to the student.

The two Departments of Chemistry also stipulated at least two supervisors to be named for a student, but the roles of the second supervisors differed considerably. On the one hand the supervisory team might only exist on paper, whereby the second supervisor did not get involved at all with the learning and development of the student, assuming a background role in case of unforeseen circumstances. As S1 explains:

> The university requires that every student have two supervisors. So there will be another staff member listed as supervisor. But in reality, it is just me. That other supervisor I guess will take over their project if I died or something, but essentially it will be just me, one supervisor.
>
> -S1, Chemistry, Hodgkin University-

The arrangement described by S1 can be considered to be typical in the Department of Chemistry at Hodgkin University, where PhD students tended to work closely with their main supervisor. Similarly, it was also common in the Department of Chemistry at Taylor University that the second supervisor was inactive in the learning and development of the student. A typical student in this department usually met his or

her second supervisor once every six months merely as a formality, and the second supervisor was also part of the team that monitored the progress of the student, alongside the Head of Section.

On the other hand, there were students in the Department of Chemistry at Taylor University who had two equally active supervisors guiding them. Both supervisors played an almost equal role in supervising the research of the student, and they had regular joint meetings. St17 was one of the students who was jointly supervised by two supervisors, and where she described the relationship as follows:

> I have a joint PhD between two different supervisors. We have weekly meetings to go through the sort of work that we are doing at the moment or what we want for the coming week. Any problems that we have, we go through them, both with the projects and with the lab.
>
> -St17, Chemistry, Taylor University-

Within the Department of Chemistry at Taylor University, two considerably different arrangements for co-supervision may be observed, where one was merely for accounting and administrative purposes, while the other was more of a joint supervision that extended the participation of the co-supervisor in the research project of the PhD student. However, it is important to note that in the formal arrangement a second supervisor may still be inactive, even though the role and responsibilities of the second supervisor were defined and outlined. For example, students were required to meet them at least once or twice a year and the second supervisor was by default a member of the monitoring team that assessed the progress of the student. Therefore, an inactive second supervisor had no direct and negative consequences in terms of delaying the progress of the research project and the learning and development of the PhD students.

Conversely, across the other three departments that did not explicitly stipulate a supervision team for each student, co-supervision was nevertheless also a common feature of supervision. However, the ways in which co-supervision was conducted in these departments differed considerably, and as the arrangements were not regulated by the department, the role and responsibilities of the second supervisor may have been less clear and hence may have led to problems and tensions in certain circumstances.

In the Department of Economics at Smith University, two of the participants in this study (St20 and St23) had a second supervisor, and these second supervisors were part-time staff in the department. As such, both students encountered great difficulties in arranging supervision meetings and approaching their supervisors. In most instances, the first supervisor was not keen to meet the student and insisted on having a joint supervision meeting. Therefore, the students were only able to meet their supervisors once every two to three months, and the infrequent meetings in some ways hindered the progress and development of the students, especially St20 who was 'writing up' the PhD thesis without feedback and guidance for several months.

However, on a brighter note, despite not being regulated by the departments, co-supervision can still be a useful educational process that intensifies the learning and development of PhD students, as well as providing necessary checks and balances and pastoral support. St4 was a PhD student co-supervised by S6 in the Department of History at Taylor University and a Professor from Macaulay University. Due to the co-supervision arrangements, St4 had the opportunity to meet and discuss her work with

both supervisors frequently; in fact, in comparison with her peers, the amount of supervision she received was nearly double. This form of co-supervision arrangement therefore not only ensured that she was monitored and guided consistently throughout the PhD, but she had the privilege of close supervision by two supervisors:

> I would say I am very fortunate in having two supervisors that are very vigorous and keen. Most people only get their primary supervisor and not a second supervisor, and the second supervisor they might see once or twice a year just to check up. Because of this special arrangement I have, I get a meeting with S6 and a meeting with [the Professor from Macaulay] every fortnight, about two hours a fortnight, or it could be an hour a week. [On top of that], every fortnight I meet the both of them [together].
>
> -St4, History, Taylor University-

The co-supervision arrangement can also function as a form of check and balance, and at the same time ensures students are able to change supervisors with ease in unforeseen circumstances, as prescribed by QAA (2004). St19's current supervisor was S13, but prior to this, S13 had been a second supervisor when St19 began as a PhD student in the Department of History at Smith University; the main supervisor was Dr Ita (a pseudonym). According to St19, he was not able to get along with Dr Ita:

> One of my main problems has been my relationship with my supervisor and that has been a big part and integral to my research. … It was quite a personality clash. She was very focused, ambitious and my project was moving away from what she thought was going to be, and my thinking was also moving away from hers. And I think the tension and clash came because she did not like where I was going, it was not her area and therefore she did not want anything to do with it. … I fought with my supervisor and she no longer has anything to do with my studies here at Smith.
>
> -St19, History, Smith University-

In this circumstance, S13, who was the second supervisor, intervened and provided the necessary pastoral support for St19 and eventually became his main supervisor. As St19 explained, following the 'crisis' he had with Dr Ita, the new supervisory relationship focused predominantly on the pastoral aspect, where S13 not only had a

role in supervising the research project, but more importantly also in rebuilding St19's confidence and interest in continuing his PhD journey:

> I suppose he is trying to build my confidence. I am still struggling somewhat but I feel a lot better than the beginning. So he is very hands off. He is extremely relaxed and so he will happily talk about my project and my PhD in a relaxed and informal chat and will socialise outside of the university setting. Whereas the previous supervisor, I was bombarded with emails all the time, like why were you not at the seminar, what are you doing about this, and it was very intense. And when we have meetings, they will sort of play good cop and bad cop, where she will be sort of fiery and angry, while he will be more relaxed. I sort of see more of myself with him and therefore I find it easier to get on with him. At the moment, my supervisor's role is sort of be there for me and I need to talk about things, read my work, give me encouragement, and that is the role that he plays at the moment, I think.
>
> -St19, History, Smith University-

Across the six departments and the different supervisory arrangements, co-supervision has played a role in influencing the interpersonal relationships between students and supervisors. Although the QAA has prescribed that departments should introduce supervisory teams, the idea of a team has clearly been re-interpreted in many ways by different departments and individual supervisors, and there is not much consistency in the introduction of this measure. While there were negative examples of co-supervision that created tensions for students – for example, students who were co-supervised by part-time staff leading to infrequent meetings and difficulties in approaching them – nevertheless the arrangement of supervisory teams has also played an important role in providing better support for PhD students in their learning and development. The experience of St19 summed up the importance of co-supervision, where one can imagine that without a second supervisor, St19 would have ended up as another example of a PhD student who dropped out.

More importantly, the ways in which the six departments introduced supervisory teams for their students has underlined the importance of ensuring effectiveness by making the roles of those involved as clear as possible. The fact that a second supervisor in the two Departments of Chemistry may be inactive with no major implications for the development and progress of students demonstrates the importance of making the roles and responsibilities of the second supervisor clear. In contrast, while the Department of Economics at Smith University encouraged the use of a supervisory team, even to the extent of including part-time staff, this has in some ways brought negative implications whereby students have not benefitted from this additional support, and in fact the additional support became a hindrance to their progress. The negative implications are partly due to the lack of a clear description provided by the department or HEI regarding the roles and responsibilities of supervisors in a team, and how the supervisory team should operate, in the absence of which it became very difficult for students to seek recourse. Therefore, being clear and explicit about these aspects may be the way to help students and supervisors to navigate the complex supervisory relationship and enhance its effectiveness with the involvement of more actors.

In relation to the idea of using a supervisory team to supervise PhD students, a department can also put in place implicit mechanisms to develop a culture of collaboration among academics while they are supervising PhD students. The PhD programme at the Department of Economics at Keynes University evolved from a UK model into a US framework. Apart from the extensive coursework, another characteristic of a US PhD programme is a collective approach involving a panel of academics to supervise the student, and this panel of academics, including the main

supervisor, will also be involved as examiners of the student (Tewari, 2012). In comparison, the UK PhD programme has a stronger emphasis on the individual supervisor or co-supervisor, and the supervisors in the UK system do not play any part in examining the student; external examiners are used instead (Kyvik, 2014). Therefore, in order to shape the norms and cultures of the academic community of the department, which aims to develop a stronger emphasis on the collective participation of academics in supervising PhD students, the Department of Economics at Keynes University had an unwritten policy of hiring academics who were familiar with or who had a PhD obtained through a structured model or programme. Hence, the majority of academics in the department had graduated with a PhD from the US or from Keynes University itself. The PhD Programme Director spoke about this unwritten policy:

> We only basically hire faculty who have done a US PhD nowadays, because economics is strongly dominated by the US. One junior colleague got his PhD from [another prestigious UK university], but he is [the] only one over the past few years.
>
> -D1, Economics, Keynes University-

This policy was intended to ensure that the PhD programme of Keynes University continued to maintain its unique characteristic of being a "US-styled PhD in a UK university", and that the academics implicitly understood the importance of collective participation in supervising PhD students. The way in which collective participation was used to indirectly supervise PhD students was through the weekly Work-in-Progress (WIP) seminars and the informal interactions that resulted from these seminars. The WIP seminars will be discussed in detail in Section 5.5. Hence, although co-supervision was not a popular or common arrangement in the Department of Economics at Keynes University, PhD students and other academics in this department had closer and more intense interactions at the interpersonal level within the department as compared to

the other five departments, and the individual students in this department tended not to be confined only to their supervisor, but to have active interactions with other academics and peers within the department. This situation also reflected a further extension of the idea of a supervisory team of two supervisors to a 'supervisory community'.

Three Forms of the One-to-One Supervisory Relationship

Apart from the emergence of a supervisory team, the relationship between a PhD student and their supervisor has also undergone significant changes in recent years, whereby three forms of supervisory relationship can be observed across the six departments. The Departments of Economics and History on the one hand, and the Departments of Chemistry on the other, illustrated two different forms of supervisory relationship. With the introduction of the Doctoral Training Centre (DTC) at the Department of Chemistry at Hodgkin University, another form of supervisory relationship has also begun to evolve.

The typical supervisory relationship between student and supervisor in the Departments of Economics and History resembles a master-apprentice relationship. PhD students in these four departments typically learned to do research under the supervision of the supervisor, where the research project of the student was independent of the supervisor's research:

> We [in economics] tend to privilege independent work and independent research. ... Whereas I know in science departments, they work on the same [research] project.
>
> -S15, Economics, Smith University-

Furthermore, students in the four Departments of Economics and History were mostly either self-funded or sponsored by external bodies, such as Research Councils, and the supervisory relationship was not influenced by monetary or financial factors.

Conversely, a second form of supervisory relationship can be observed in the two Departments of Chemistry. This form of supervisory relationship is different from the one observed in the Departments of Economics and History, and this form has also changed over time even within in the Departments of Chemistry. S8 is a supervisor in the Department of Chemistry at Hodgkin University, who also did her PhD there. She recalled her experience as a PhD student, in that:

> My supervisor was a very hands-off supervisor. So, he kind of gave you the responsibility to do things. At the beginning, they gave me a bit of structure to show me what to do, but beyond that you have to work out what was going on. He was very good, we had meetings every week and so on, but he wasn't a micro-manager at all. He was very calm, relaxed. If you have an idea, then that was fantastic and you could go off and chase your own idea. It was a very good type of supervision because I could learn a lot from him and go away and think about things and work out what I wanted to do.
>
> -S8, Chemistry, Hodgkin University-

The description of S8 about her experience and interaction with her supervisor seemed to suggest a relatively unstructured supervisory relationship between an apprentice and a master, which was relatively similar to the existing relationship in the Departments of Economics and History. The supervisor provided learning opportunities for the student to have his or her own ideas, test these ideas, learn the 'nuts and bolts' of research, and eventually develop into an independent researcher.

However, the supervisory relationship in the two Departments of Chemistry has recently become much more structured and complicated due to the way in which PhD students are funded. The current form of supervisory relationship that is dominant in

the two Departments of Chemistry is predominantly based on the funding and initiative of the supervisor instead of the student. A large majority of PhD students across these two departments were funded through their supervisors. Typically, the supervisor proposed a research project and sought funding for the project. Having received the funds, the supervisor recruited PhD students to conduct research on a particular aspect of the project, and the students then used the findings from the part of the project which he or she researched, wrote a thesis and submitted it for a PhD degree. For the supervisor, the findings and publications of the PhD student contributed towards the larger research project. As the students were funded by the research project of the supervisor, this form of supervisory relationship has a strong employer-employee relationship. S8 described the current arrangements in the Departments of Chemistry:

> There is a lot of misconception about PhDs, I think, especially among people who are non-scientists. A lot of people think that they are not paid for it, that they bring their own money, and I have had people in the central university say, "They bring the project idea, they bring the money", and I said, "Actually, no, it is my project idea, I have written the proposal, I have got the money for it, I have recruited someone". They developing as a PhD student and they have to have freedom to do that and come up with their own ideas. But ultimately, I have done all that work to get the studentship to advance my own research as well. So, you can't split them, you can't split one from the other, and I don't think you should. Students are not lab monkeys, they shouldn't be sitting there just turning the handles and getting you the papers you want. But at the same time, there has to be a balance, you can't just let them go off and do whatever they want, they may not get a PhD out of it and your research might suffer. So, you have got to balance it.
>
> -S8, Chemistry, Hodgkin University-

It is also important to point out that timely completion by the doctoral students is one of the performance indicators of the research grant. As such, supervisors have an added incentive to ensure that students who are sponsored by their grants complete

their PhDs on time. This is to ensure that the supervisor has a good track record that can be used in the future for other grant applications.

However, a third form of a supervisory relationship can be observed in situations where the Research Councils introduced the concept of the Doctoral Training Centre (DTC) to prepare and develop researchers using a more learner-centred model. The concept of the DTC has brought different forms and structures into PhD education, which led to changing supervisory relationships. Specifically in the Department of Chemistry at Hodgkin University, a DTC PhD programme was introduced in collaboration with the Department of Engineering, and as the DTC PhD Programme Director (D6) outlined, the unique characteristics of this DTC were:

- PhD students are funded for four years. The Research Councils, Hodgkin University and a number of corporate businesses and companies jointly funded these students in their individual capacity, with funding not going through a supervisor.

- These students first have to attend a series of courses in both chemistry and engineering for a year. Also within the first year, students have two attachment projects to carry out some experimental work in a chemistry laboratory and an engineering laboratory.

- At the start of the programme, students are given a list of projects that have been proposed by the academic staff of the departments of both Chemistry and Engineering, and at the end of the first year students choose the project they are interested in and work on the project for the next three years under

the supervision of two supervisors from the two departments, leading to a PhD degree.

The introduction of the DTC and the way this programme has been structured by the Department of Chemistry at Hodgkin University brought about changes in the relationships between supervisor and student, as S1 described:

> The DTC students applied to the Doctoral Training Centre before having any idea who they would work for. The students arrived in the university, all their fees and stipends paid, they come with a budget to pay for laboratory consumables and they are looking for a boss. They arrive here in the university, the first thing that happens to them is they receive a big directory of possible project areas and each different staff member and what their interests are and projects that they [the staff] are proposing. So as you can imagine, many supervisors are keen to get the DTC students to work for them, so this is very much a case of selling your research area. ... Whereas with my traditional PhD students as I call them, I acquired the funding to hire them and then went looking for students. I got that money and they are being paid, again officially by the university, but you know, by me. I am running that show. ... That is a very different kind of power dynamics actually.
>
> -S1, Chemistry, Hodgkin University-

As a result of the way in which the DTC programme was structured and funded in the Department of Chemistry at Hodgkin University, the employer-employee relationship between supervisor and student in this department changed to a consultant-client relationship instead. The power dynamics also changed, highlighting some of the tensions underlying the supervisory relationship. On the one hand, the supervisor has seen his or her role changing from being the person who controls the funding and makes decisions like an employer to a consultant who has to promote oneself and impress clients so that they will want to work with them. On the other hand, the student's role has changed being an employee who has to impress supervisors to 'earn' the opportunity and funding to conduct experiments leading to a PhD, to a client

who can choose which supervisor he or she would like to work with. Thus, the power dynamics between supervisor and student have changed remarkably as a result of the introduction of the DTC programme, and tensions may have emerged as supervisors lost a certain degree of control over the research of their students. As S1 further explained:

> The Doctoral Training Centre represents that change and I think looking at funding decisions recently from [the Research Council], it is increasing clear that policy decisions are being taken at funding council level or governmental level which are moving towards the DTC. I think that is pretty clear that somewhere important people have decided that is what the future [of PhD funding] is going to be. The idea of an individual supervisor writing a grant to send to a funding council to get money to hire a PhD student to work for them, those days are coming to a close. So whether we like it or not, large groupings that are funded with one large chunk of money for multiple students in that grouping, and collaborative supervision, is how things are going to be. That is certainly within chemistry and maybe more broadly within science.
>
> -S1, Chemistry, Hodgkin University-

In addition, the DTC programme also stipulated a supervisory team of at least two supervisors – one from chemistry and another from engineering – to supervise a PhD student. Hence, the supervisory relationship not only takes a new form with a changing power dynamics, but it may potentially have other tensions in the interpersonal relationships among the supervisors from different disciplines as well as between supervisors and student. The potential tensions may involve the direction of the research project, the responsibilities of each supervisor, and issues related to the individual disciplines' cultures and norms, which need to be made clear.

Acker (2001), in illustrating the implicitness of the supervision process, provided a comparative example of the process of finding a supervisor in the UK and Canadian contexts, and drew out the national differences in this common process. However, the

different dynamics underlying each of the forms of supervisory relationship illustrated in this section have further illuminated the fact that the matching processes between supervisor and student can be distinctly different, even within a single department in a UK university. Importantly, these different forms of supervisory relationship highlighted the nuances in what may seem to be a homogeneous relationship between a student and a supervisor. In actual fact it is a far more complex relationship in PhD education, driven by the different incentives that each individual actor may have.

4.7. CONCLUSION

At the start of the chapter I argued that the thesis and the supervision process have been the two major aspects of PhD education since its inception more than a century ago. However, from the accounts of students and supervisors across six departments in three disciplines in four HEIs, it is clear that the thesis and the supervisory relationship are both more complex than is commonly understood. A thesis is more than a product which determines whether a student can be awarded the PhD; importantly, it has a role in shaping and conceptualising the idea of research and dictating the educational processes in the PhD.

The complexities associated with the thesis have been influenced by, first, a highly generic approach used by HEIs to define a PhD. The generic approach has therefore required significant re-interpretation by the departments to incorporate the norms of different disciplines. The re-interpretation process led to highly differentiated ideas, structures, formats and characteristics of PhD theses. Not only is the PhD thesis different across departments, disciplines and HEIs, the understanding of a thesis is

further differentiated by the individual ideas of supervisors and students, and differences in these ideas potentially lead to mismatches and tensions.

The complexities of the thesis as a result of many levels of re-interpretation have a significant influence on the supervisory relationship, and brought another layer of complexity to this interpersonal process between student and supervisor. The differentiated idea, structure, format and characteristics of a PhD at the institutional, departmental and individual levels of supervisors and students have led to a wide variety of strategies, activities and tasks used by supervisors to support their students in a supervisory relationship. In addition, the individual ideas of supervisors, for example about research capability as the most important element to be learned in PhD education, have also dictated a wide range of activities and tasks used by supervisors in the process.

However, besides the role and influence of the thesis, the supervisory relationship is also influenced by the personalities of supervisors and students, as well as departmental and institutional factors such as the pressures which require academics to juggle many different responsibilities. These different factors have in one way or another shaped the usefulness of supervision from the perspectives of supervisors and students, and the differences between these actors highlight some forms of mismatch and tension. Furthermore, the introduction of the concept of a supervisory team, the explicit and implicit ways in which departments introduce this arrangement to the supervisors and students, have led to different effects on the learning and development of students. Some students have benefitted from the arrangement of a supervisory team to guide and support them, while some students have been hindered

by this more cumbersome setup to the supervision process. On top of that, the three forms of one-to-one relationship between a supervisor and a student – the master-apprentice, employer-employee and consultant-client relationships – have also added to the complexity of the power dynamics and incentives underlying the supervisory relationship. The different forms observable across the six departments illustrated the variation and changes that have shaped the supervision process in becoming more complex.

Further to understanding the complexities underlying the thesis and supervisory relationship, the findings surrounding these two themes have also shown a great degree of inconsistency in the processes involved in developing PhD students to become researchers. Not only are the processes different across departments and HEIs, the inconsistency also cut across individual supervisors and students. The lack of structure to ensure consistency, for example in monitoring the ways in which supervision is carried out by different supervisors in a department, has further illuminated challenges of ensuring the effectiveness of supervision to support students to produce a thesis. Hence, the inconsistencies of the processes involved may reduce the effectiveness of the processes that support the development of PhD students in becoming researchers, as there were inconsistencies across institutional, departmental and individual supervisors in many aspects relating to the thesis and supervision. For instance, there was a variety of understanding about research capability among supervisors, as well as the ways in which the three-essay thesis format was introduced across the two Departments of Economics. These inconsistencies, if left unexamined, may potentially impact on the effectiveness of a supervisory relationship in supporting students to produce a thesis. Hence, the inconsistency should be made clear as a way

to enhance the effectiveness of educational processes in the PhD and the quality of PhD education in developing researchers.

Having explored the complexities in the educational processes in the PhD, specifically regarding the PhD thesis and supervision, the next chapter focuses on examining the complexities that arose from the formalisation initiative in terms of having continuous assessment and courses in the PhD.

Chapter 5

Formal Assessment and Courses

In 1967, Professor S3 had just finished her first degree and enrolled as a PhD student at a UK university. She was assigned to a supervisor and met him once every few months when she had written something and needed feedback. After a few supervisory meetings, S3 decided that the PhD was not what she wanted to pursue and withdrew from the PhD programme. She went on to teach and conduct research in the university. Today she is a Professor, one of the most successful supervisors in the Department of History at Taylor University in terms of the number of students supervised, and has served as the PhD Programme Director. Interestingly, when she recalled her experience as a PhD student and compared it to the current experiences of PhD students, she remarked that the changes in what students are experiencing were "absolutely unthought of". She explained that while "the thesis and *viva voce* has not changed at all", the educational processes have become much more formalised with a strong emphasis on timing to completion.

The account of Professor S3 captures the essence of this findings chapter in terms of the formalisation of PhD education. As such, this chapter explores the introduction of, first, formal assessment to ensure timely completion of the PhD, and second, formal coursework as part of the PhD programme. Although formalisation can be regarded as a relatively new phenomenon in PhD education, there are significant similarities and differences in the ways in which these formal structures and processes were put in place in the departments in this research, and in addition the actors have different

understandings and opinions. Cumulatively these viewpoints have shaped and influenced the highly complex educational processes in the PhD.

In the previous chapter, I argued that the understanding of the thesis and supervision as the major educational process were found to be complex and inconsistent across HEIs, departments and supervisors. The inconsistency, in turn, raised questions about the effectiveness of developing students in becoming researchers through these educational processes. Thus, the formalisation processes examined in this chapter were initiatives undertaken partly to address the concern for quality in PhD education. Furthermore, looking at the complexity, this chapter also seeks to understand the extent to which these formalisation processes have been consistent and effective in developing students to become researchers.

5.1. FORMAL ASSESSMENT PROCESSES

Traditionally, the *viva voce* was the only examination, occurring after the submission of the thesis, to determine whether the student should be awarded a PhD degree. Each of the four HEIs and six departments has an oral examination in place at the end of the PhD (discussed in Chapter 4). However, due to the concern for the quality of PhD education and to address some of the criticisms and problems associated with PhD education, such as poor supervision and unsatisfactory completion rates (Cowen, 1997), more formal structures to support the educational processes in developing new researchers have been recommended to the HEIs. One of these structures is for HEIs to have a monitoring system in place during the course of the studies, rather than waiting for assessment to take place solely at the end of the PhD (QAA, 2004; UKCGE, 1996).

Therefore, it is now common for PhD students to undergo at least one assessment or monitoring process during the course of their studies.

However, the ways in which assessment and monitoring processes carried out across the four HEIs differ considerably, but what is common across these institutions is that PhD students are not admitted directly as PhD candidates. Students are admitted either as an 'initial registered' candidate or as a student in a Master's programme. For example, students in Hodgkin University and Taylor University are admitted as candidates for the Master by Research (MPhil) degree. After this, students will only be granted the status of a PhD candidate when they have successfully passed the assessment exercise, which is called Transfer or Upgrade depending on the institution.

The requirement for Transfer/Upgrade across the four HEIs is part of a general framework, whereby the institution has prescribed the need for each student to be assessed and monitored formally before a student can be granted PhD candidature. However, there is no mention of how this assessment is to be conducted. The general framework was intended to allow each department to take into account the needs and norms of its discipline and incorporate them into the Transfer/Upgrade process. Departments are then expected to introduce a more refined process or series of processes to monitor and assess the progress of the student's research project as well as his or her abilities to complete the PhD. As such, the incorporation of the needs and norms of the discipline can be considered a form of re-interpretation by departments of the institutional requirement to assess and upgrade/transfer the candidature of students. For instance, in chemistry, the norms and needs of the discipline are to assess the ability of students to conduct experiments, master certain techniques or use

a particular instrument that enables the PhD research to be completed. On the contrary, students in history may have to demonstrate the ability to conduct primary research through analysing medieval documents.

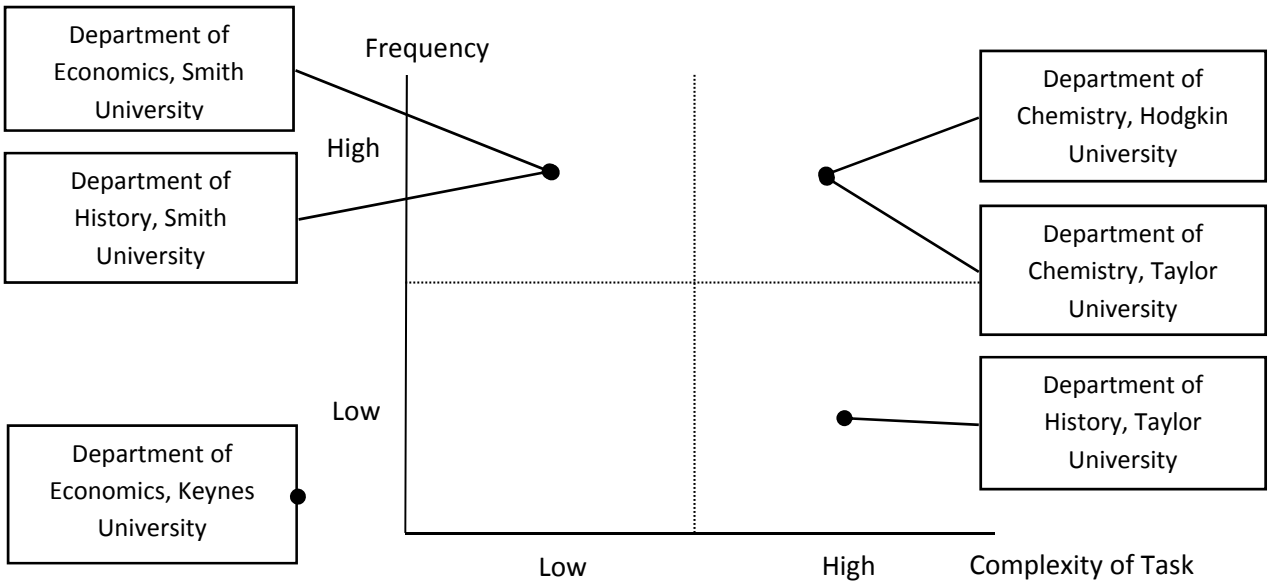
Thus, each of the six departments has re-interpreted differently the general framework for Transfer/Upgrade of their institution and outlined a unique set of assessment processes for the department that also took into account the needs and norms of the discipline (see Table 5.1). These assessment processes differ across the six departments, even though some departments may be in the same institution or discipline.

Although the primary focus of the transfer/upgrade is to monitor the progress of the PhD research project and the student's ability to undertake research, there are significant differences in terms of the duration, approach and activity used across the departments, even within the same discipline. In this regard, duration refers to the number of times a student is assessed and how long the assessment period will be. Approach relates to the methods used to assess the students, while activity refers to the different events that are included as part of the assessment. The differences across departments in the same discipline also illustrate that the cultures and norms that shaped these processes are not solely disciplinary-based. Instead, these differences also imply a more subtle influence of institutional cultures and norms on the assessment processes, such as the perception and emphasis of academics in the HEI on the importance of having a clear structure to monitor students.

Table 5.1. Assessment Processes across the Six Departments

Department	Assessment Process
Economics, Smith University	• The Doctoral Workshop – an annual one-day event where every PhD student is required to present their work and the department will appoint assessors to give feedback to the student. The participation in this workshop at the end of the student's first year will be considered as a confirmation of the PhD candidature.
History, Smith University	• Annually, the student and supervisor each writes a report and an assessor from the department reads both reports. The assessor will meet the student and supervisor to discuss the reports and progress. The confirmation of the PhD candidature will take place concurrently in the annual review at the end of the first year.
History, Taylor University	• There is only one formal assessment, which is the upgrade examination. The student has to: o Prepare a summary of the thesis; o Produce a 10,000-word chapter from the thesis based on primary research; o Give a presentation at the departmental seminar; and o Attend a discussion with a panel of assessors which comprises of the supervisor, the secondary/backup supervisor, the PhD Programme Director and an independent assessor.
Chemistry, Taylor University	• Variety of methods used at different stages: o First year – twenty-page report and *viva voce*; o Second year – poster competition; and o End of second year (upgrade examination) – forty-page report and *viva voce.*
Chemistry, Hodgkin University	• Variety of methods used at different stages: o First year (upgrade examination) – poster, report and *viva voce*; o Second year – fifteen-minute presentation at the departmental seminar; and o Third year – fifteen- to twenty-minute presentation at the Postgraduate Symposium
Economics, Keynes University	• No formal assessment between the completion of the two-year coursework and the *viva voce* after the submission of the thesis. • A student who successfully completes the two-year coursework is considered to have upgraded to PhD candidature

Figure 5.1. The Complexity of Task and Frequency of the Assessment Processes across the Six Departments



To simplify our understanding of the assessment processes, the variations in duration, approach and activity across the six departments can be framed into a matrix according to the complexity of tasks involved and the frequency of assessment. The mapping in Figure 5.1 illustrates four groups of assessment processes. The first group comprises the two Departments of Chemistry, which have introduced a variety of tasks using different approaches and activities to assess the progress of their PhD students on an annual basis. These tasks include, for instance, submitting a report, presenting a poster, giving a presentation in the department, and attending an interview with a panel of assessors. The frequency of assessment in these two departments is also high, whereby on average students are assessed approximately once a year.

The second group, which involves the Department of History at Taylor University, has only one formal assessment in place throughout the PhD. Although the duration of the assessment process spans several months, it is low in frequency as it only happens

once throughout the entire candidature of a student. However, the tasks involved are much more complex. The student is required to present his or her work at the departmental *Research Training Seminar*, submit a findings chapter from the thesis based on primary research for assessment, and attend an interview with a panel of assessors.

The third group includes the Departments of Economics and History at Smith University. Both departments in this HEI have relatively simple and straightforward assessment processes in place. The Department of Economics organises the *Doctoral Workshop*, which is an annual one-day event for all PhD students in the department to present their work. The Department of History also has a simple annual assessment process, where a PhD student prepares a brief overview of his or her progress, the supervisor writes a short report about the student's progress, and the assessor will meet with the student and supervisor to discuss the progress. However, the frequency of assessment is high as it takes place once a year, and the transfer/upgrade is the first year of these annual assessments.

The Department of Economics at Keynes University is the only department which does not have a formal assessment process in place during the research phase of the PhD. Instead, formal assessment is carried out during the two-year coursework and consists of examinations and assignments in each of the six modules a student is required to complete. The department considers the completion of the coursework as an indication that a student has made sufficient progress and is deemed capable to progress with conducting the research under the supervision of the supervisor. Hence,

there is no formal assessment process in this department and the assessment of the student is implicitly left to the supervisor.

It is insufficient to only understand the different ways in which assessment processes are designed in terms of the frequency and tasks involved across the six departments. As such, the subsequent sections will examine the perspective of the actors involved. Section 5.2 examines the roles and involvement of a wide range of actors in the assessment processes. It is important to note that the assessment process is arguably the process which involves the most diverse group of actors, from the student, supervisor and peers to many other academics both within and outside of the department. The involvement of many actors, with perhaps differing thoughts and ideas which may have direct consequences for the progress of the students, suggest some complexity in these assessment processes. Section 5.3 revisits the mapping of the complexity of the tasks involved and the frequency of assessments, using this analysis to compare the perspective of students on the usefulness of these assessment processes in their learning and development.

5.2. THE INVOLVEMENT OF MANY ACTORS IN ASSESSMENT PROCESSES

In comparison to other aspects of the educational process, such as supervision, where the main actors involved are the student and his or her supervisor(s), assessment processes can be considered as the ones that involve the widest range of actors. Not only students and supervisors are involved; peers and other academics within and outside these departments also have major roles to play in these assessment processes. The roles and participation of these actors are both formal and informal,

and more importantly, they have direct and indirect influences on the learning and development of PhD students.

Department-instituted assessment processes

An in-depth examination of the entire assessment processes in the Department of Chemistry at Hodgkin University illustrates the role and involvement of actors. The assessment process in this department involved the widest variety of actors across the six departments, and hence, it is a good example to illustrate their roles and involvement. The assessment processes in this department are carried out on an annual basis, and involve different tasks for students at different stages of their PhD research project. Towards the end of the first year, PhD students are required to complete three tasks: present a poster at the Postgraduate Symposium, write a report about their progress in the first year, and attend an interview. As the PhD Programme Director explained:

> The poster is assessed, not really marked. There is some pro forma that we use. A couple of members of staff go around all the posters and write comments about the content and the presentation, and then there are prizes given for the best poster across [different specialisations within the department] to provide a bit of incentive for the student. ...Then [students] have their first year report and a viva. They get feedback, hopefully from their supervisor when they are writing their report, and then from the examiner about the content and the presentation of the report.
>
> -D2, Chemistry, Hodgkin University-

All three tasks for assessment in the first year involved not only the PhD student and his or her supervisor, but also other academics in the department. Other academics are directly involved in giving feedback and comments about the poster presentation, as well as acting as an examiner to the student in a *viva voce*. Through the feedback

and comments, PhD students have opportunities to improve their work and to develop a clearer direction for progress with their research project.

Having successfully completed the three tasks in the first year, the student is then allowed to proceed into the second year of the PhD, which typically focuses on conducting the experiments and generating the empirical results for the thesis. Students in the second year have to give a fifteen-minute presentation at one of the departmental lunchtime seminars on the progress of their research, specifically presenting the empirical findings yielded from experiments conducted. The audiences of these lunchtime seminars are mostly students of the department. This second-year assessment process illustrates the role and influence of peers in shaping the learning and development of PhD students. The presentation at the lunchtime seminar provides the opportunity for the PhD student who is presenting to gain feedback on his or her work, and at the same time, also allows other PhD students to learn from one another through the work that was presented, the technical aspect of the experiments conducted, and its findings, as well as the questions and answers that were discussed, as D2 summarised:

> This talk is not specifically marked, but they get a lot of useful feedback because it is an audience of other students. The students, among themselves, shared a lot of good advice.
>
> -D2, Chemistry, Hodgkin University-

However, this second-year assessment only requires the student to make the presentation without having anyone responsible to ensure the quality of the presentation or the work presented. Furthermore, it should be noted that other PhD students in the department are not required to attend the lunchtime seminar; their attendance and participation are merely voluntary. Therefore, the participation of

peers in the assessment process has not been structured, but is carried out in a *laissez-faire* manner. More importantly, presenting the talk is merely putting a tick on the checklist of what needs to be fulfilled, as there is no one to assess the quality of the talk or the material provided. This situation is different from the *viva voce* in the first year, where there are academics that assume the role of examiners.

In the third year, PhD students have to give a presentation that summarises their research project at the annual Postgraduate Symposium, attended by all academics and students of the department. During the symposium, every academic in the department is able to give feedback and comments about every aspect of the presentations. The feedback and comments are written on paper, gathered by the department and passed on to the students so that they know exactly the comments and feedback for improvement. The PhD Programme Director remarked:

> Every staff member who attends has a pro forma and they write comments [about the presentation of each student]. These comments are fed back to the student, and again, there are prizes for the best presentation [across the different specialisations within the department].
>
> -D2, Chemistry, Hodgkin University-

The written feedback is important as it ensured that each student would receive constructive comments from every academic in the department to help them in writing the thesis and preparing for the final *viva voce*. Again, the presentation at the annual symposium can be seen as a mere tick on a checklist as it does not require anyone to be responsible for ensuring the quality of the work presented or the presentation itself. However, what is different from the presentation to peers during the second year is that the presentation at the symposium is attended by all academics

and students, and the pro forma and written comments can be considered an explicit tool to ensure that feedback and comments are channelled to the student.

From the three annual assessment processes in the Department of Chemistry at Hodgkin University, it is clear that academics and fellow students in the department played an important role in influencing the educational processes in the PhD. Likewise, the assessment processes across the other four departments also involved peers and other academics. The annual reports and the follow-up *viva voce*, which were part of the assessment processes in the Departments of Chemistry and History at Taylor University as well as the Department of History at Smith University, are examples of the significant role and involvement of other academics in the department in the learning and development of PhD students. The academics, who assume the role of examiners, play a crucial role in the learning and development of the students by giving feedback and comments on the progress of the student's research project. More importantly, as examiners, other academics also play an important role in deciding whether a student has made sufficient progress and is able to proceed to the next phase of work. This decision by other academics in the department is seen to be a form of check-and-balance in ensuring students are progressing and supervisors are doing their job in guiding the students.

Furthermore, the requirement for PhD students to present their work as part of the assessment process also illustrated assessment processes that involved peers and other academics as audiences. Through the interaction as well as the questions and answers, PhD students are able to gather feedback on their work and learn and develop as researchers. However, apart from the Department of Chemistry at Hodgkin

University, where all academics who attend the third-year symposium are expected to provide written feedback, the role of other academics and peers as audiences in other departments may be more passive. For instance, in the Doctoral Workshop of the Department of Economics at Smith University, only the appointed assessor is required to provide written feedback to the student about their work and progress through the presentation, while the audiences at the departmental seminars in the Department of History at Taylor University have no obligation to provide any form of feedback to the student who is presenting their work as part of the formal assessment.

'Additional' assessment processes

However, in addition to the department-initiated assessment processes, supervisors can also initiate additional assessment processes for their students. For example, in the Department of Chemistry at Hodgkin University, supervisors can organise other forms of assessment that run alongside the ones determined by the department, but the former did not occur as regularly.

S1 is one of the supervisors who organised additional assessments for his students. At the end of his students' second year, S1 organised an informal *viva voce* for them. In this additional assessment, S1 asked the students to write a section of the thesis based on the experimental work conducted in the first two years, and he invited an academic from another university to conduct an informal *viva voce.* The intention was to provide additional feedback for his students from the wider academic community. Moreover, apart from the first year *viva voce*, the annual assessment processes in the Department of Chemistry at Hodgkin University did not have processes that mimicked

the format of the final *viva voce.* Hence, the informal second year *viva voce* was considered as a form of practice for S1's students, making them more familiar with the final assessment process. S1 rationalised the additional assessment as follows:

> [This assessment] has no legal meaning and it has no significance whether the student passes or fails. It was purely a practice because I felt the students needed the practice and needed some feedback on their performance [in an interview]. You would not expect their performance to be perfect after two years, but I was aware that with one student in particular, the general background knowledge was not coming along as well as perhaps it could be. I felt that hearing that feedback from somebody other than me, who is also an external figure, might be a good way of reinforcing that to their minds.
>
> -S1, Chemistry, Hodgkin University-

The additional assessment processes organised by S1 highlighted two important points related to the learning and development of PhD students. First, the additional assessment introduced by S1 illustrates that other actors are involved not only in department-initiated processes but also in additional ones. At the same time, the additional assessment demonstrates that these actors are not only confined to the department or HEI; actors in the larger academic community in other HEIs and departments also have a role to play in shaping the learning and development of PhD students along the course of study.

Second, and more importantly, this initiative by S1 underlined the important role of supervisors in the assessment processes. The discussion about the department-instituted assessment processes has painted a picture of the top-down assessment students have to complete as a means to check on their progress. The role of a supervisor seemed to be passive, merely based on supporting his or her students in preparing them for the department-initiated assessments. However, the initiative of S1 demonstrated an important example of a bottom-up assessment, which also implies

that a supervisor has the avenue to play a proactive role by introducing additional and appropriate assessment processes for his or her students with the assistance of colleagues and other students within and outside the department.

This detailed examination of the assessment processes determined by the departments in Section 5.1 and the participation of a wide range of actors in these assessments in Section 5.2 have given us an understanding of the departmental and interpersonal domains in shaping assessment processes in the PhD. While some of the processes and participation of actors are more formal than others, all have significance in influencing and supporting the learning of PhD students to become researchers.

5.3. STUDENTS' PERSPECTIVES ON ASSESSMENT PROCESSES

Having examined the roles of different actors in the assessment process, this section shifts the focus to examine the perspective of students. To do this, the mapping of the complexity of tasks and frequency of assessment processes across the six departments, shown in Figure 5.1 will be revisited. The mapping has not only allowed us to understand more systematically how these processes were carried out; interestingly, the mapping also identified patterns in the students' perspectives on these assessment processes. There are two major findings from the students' perspective:

1. A simple assessment process may not be useful in monitoring the students' progress, and may possibly have negative implications; and

2. A rigorous and elaborate assessment process tends to bring positive experiences, and is perceived by students as useful and important.

Simple assessment processes

The first major finding from the students' perspective is that a simple assessment process may not be useful in monitoring; instead it may bring about negative implications for progress. Relatively simple assessment processes were put in place to monitor the progress of the students and their research projects in the Departments of Economics and History at Smith University. However, due to the simplistic nature of these assessment processes, students had a negative experience of their assessment, which has other complications in their research project. For example, St22, from the Department of History at Smith University, commented about the lack of clear expectations and the poor administrative structure of these assessment processes. It was claimed that students had not been informed clearly of the expectations and the standards required of their work for assessment. In addition, St22 also commented on the lack of administrative structure to organise the assessment processes in a more systematic manner, such as who coordinates the assessors and who sets dates and sets up the assessment meetings. In theory, a student in this department should be assessed during the eighth or ninth month of his or her PhD programme. However, as a result of a series of miscommunications and a lack of proper administrative structure, St22 only had his first annual assessment in the fourteenth month of his PhD, and this delayed the progress of his research project. Importantly, the account from St22 illustrates the ways in which a simple assessment process that has not been

properly organised and conducted may hinder progress, rather than monitoring and supporting the student.

Similarly, St19, from the same department, encountered different sets of problems due to the overly simplified assessment process. St19 was asked to submit a short report of what he had done in the first year, and he submitted a five-hundred-word essay. One could argue that five hundred words is an extremely short piece of work, given that a thesis in history usually comes up to 100,000 words and a chapter is on average 10,000 words. To St19's surprise, the assessor and both supervisors did not seem bothered by the fact that the essay might not have been up to the mark of PhD work, and they passed his assessment, which allowed St19 to proceed into the field and begin data collection. He narrated his experience of the meeting as follows:

> I can give an example of [the] monitoring meeting I had in my first year, eight months after I started. They asked me to produce some work, I submitted a five-hundred-word essay on what I was going to do, my sources [and] methodology, and this essay was a pile of crap. It was awful, it was absolutely useless and I sat in the meeting and they [the assessor and both supervisors] were like, "This is very good and we like these ideas, we like this, we like that. And thank you for submitting, it was good". And I walked out of that meeting and thought, I got away with it, and then I thought, I know that was rubbish, why are they not telling me this is not focused enough. It was very broad and I knew it was rubbish. I didn't understand why they were saying there were some good ideas. They never pressured me to pin down my ideas.
>
> -St19, History, Smith University-

Although St19 was surprised and glad that he got through the first year assessment with ease, he eventually encountered problems with the research and subsequently had major disagreements with his primary supervisor. The problems he encountered can be partly attributed to a superficial approach to assessment, and to some degree of 'concealment' on the part of the assessor. Because of these problems, he had to

change the research focus, his approach to the project and his supervisor at the end of his second year. In order words, he had to re-start his PhD research at the end of the second year, his studentship was delayed for a year and funding was also affected. The PhD Programme Director reaffirmed the weakness of the rather simplistic assessment process, whereby he shared:

> There have been some complaints from the faculty that the reports of assessors are often not quite as revealing as they should be, and there are students who do find themselves in difficulties when the annual monitoring is read in retrospect. There may have been a degree of concealment of the student's difficulties or the student's difficulties might not have been picked up.
>
> -D4, History, Smith University-

In similar ways, the simplistic nature of the assessment process in the Department of Economics at Smith University has also not been effective in illuminating the problems encountered by the students in their research project. In this department, each student is allocated thirty minutes to present his or her work, together with questions and answers, at the annual one-day Doctoral Workshop, and this is the only assessment process in place. Therefore, the difficulties and problems encountered by students, for example not being able to communicate with the supervisor and not getting adequate supervision and support, would not have been picked up by the department and the HEI through such a simplistic assessment process. In Section 4.5 (p. 175) on supervision, there was a student (St20) who encountered difficulties in getting adequate support and supervision. However, neither the department nor Smith University had been made aware of her problem because the assessment process only required her to give a thirty-minute presentation in public. As long as a student did not stumble at the Doctoral Workshop, it was almost impossible for the appointed assessor to pick up problems in a supervisory relationship. Although the

appointed assessor for the student would usually ask several questions after the presentation, in actual fact there was no avenue for more personalised feedback through the assessment process, and no capture of difficulties and problems encountered by students in the Department of Economics at Smith University because of using such a simplistic assessment method.

Rigorous and elaborate assessment processes

The second major finding about assessment processes from the students' perspective is that a rigorous and elaborate assessment method is useful and important for their development. Across the other three departments – the Department of Chemistry at Hodgkin University and the Departments of Chemistry and History at Taylor University – these departments had more structured and rigorous assessment processes in place, and students had a more positive experience of these processes. Although a more rigorous and structured assessment process may have been more time-consuming, required significant effort and potentially more demanding in terms of preparation, nonetheless, at the end of the process, students received constructive and useful feedback that helped them to make progress with their research projects. For example, St11 described the tasks involved in the assessment and his reaction to the processes, in which:

> You have to write reports, I think, at the end of first or second year, which is useful. I use my first [published journal] paper as the report and it was followed by an [oral] examination. I think [the assessment processes] are useful, but it takes some time for you to prepare.
>
> -St11, Chemistry, Taylor University-

In situations where there were potential problems with the student or the project, the series of structured assessment processes with personalised sessions, such as an interview or oral examination, were much more effective at picking up problems and helping the student to address these problems promptly. St7 was one of the students who benefitted from having a personalised session with her assessors. In reading her first year report, the assessors spotted problems whereby in her writing, she was using others' ideas without acknowledging and even understanding the ideas. Through the *viva voce*, the assessors pointed out her problem and advised her how to address and avoid making such mistakes, which were fundamentally related to her difficulties in switching from French to English in the initial stages of the PhD. St7 recalled her experience going through the assessment:

> In my first year, I admit that I plagiarised somebody else's introduction. I didn't understand everything I wrote, because I had so much to learn technically, [and] I didn't have the time to learn the theory behind it. That was the question that caught me out. The two assessors who interrogated me, they were very kind to help me find the answer. But, I learned that it is better to have at least an idea how to get to the answer, even if you don't know everything, you need to be prepared to work it out.
>
> -St7, Chemistry, Hodgkin University-

In comparison, students in the three departments which had more structured assessment processes tended to have more positive experiences compared to their peers in the two departments with more simplistic processes. The former were able to articulate what they had learned and the ways they had learned from undertaking the different tasks required of them. The usefulness of the assessment processes did not lie in the frequency or the time taken to assess the students. Instead, it lay in the nature and the rigour of the tasks, which gave a sense of usefulness and a positive experience in developing the students' research capabilities.

The complexity and frequency of assessment processes across the five departments highlight an important point: identifying the appropriate assessment process is crucial in keeping track of the progress of students and supporting their learning and development. Although the assessment processes were introduced with a similar intention to monitor the progress of PhD students in terms of their research project, the different tasks and their variable durations, frequencies and complexities led to inconsistencies even across individuals within a department, and this further affected the level of effectiveness of these processes to support, assess and monitor the progress of students. Hence, in the midst of this complexity, recognising what is right and appropriate for the students is important, and a consideration of how to maintain consistency within a department across different assessors, supervisors and students would further add to the effectiveness of these processes.

5.4. FORMAL COURSEWORK

Apart from the formal assessment processes which were outlined by the four HEIs and introduced in different ways across the six departments, PhD education also now requires formal coursework as part of the educational processes in the PhD. The pressure to introduce formal coursework arguably began in response to concerns about the traditional unstructured apprenticeship approach used in PhD education, which has been criticised and associated with problems of poor supervision and lack of knowledge in students. The problems and concerns, which emerged as early as 1963 in the Robbins Report, have led to the institutionalising of the formal and structured

provision of research training to equip PhD students with the knowledge, skills and capabilities for them to undertake research (CHE, 1963; Collinson, 1998; Cowen, 1997).

Table 5.2. Coursework across the Six Departments

Department	How Coursework Features in a PhD Programme
Chemistry, Hodgkin University	• The department has two PhD programmes: a traditional PhD and a Doctoral Training Centre (DTC). The DTC programme has an additional year of formal coursework for the DTC PhD students, but as the two programmes were administered separately, there is no coursework for the traditional PhD students. The two groups of PhD students are kept apart throughout their courses.
Chemistry, Taylor University	• The department introduced an informal DTC providing a series of optional coursework for students in the department, as well as a platform that brings together students from different laboratories and research groups to interact, work and collaborate.
History, Smith University	• As the Master's qualification is used as an implicit criterion for admission to the PhD, the assumption is that the student would have learned and developed the necessary knowledge, skills and capabilities from attending the coursework at the Master's level. Therefore, there is no coursework at the PhD level.
History, Taylor University	• The Master's qualification is explicitly stated as a pre-requisite for admission into the PhD programme. Based on a similar assumption illustrated above, there is no coursework for PhD students of this department. • However, students are required to attend the fortnightly seminar programme in the department.
Economics, Keynes University	• A mandatory two-year coursework consisting of six modules and the completion of the coursework is a pre-requisite for students to progress to conduct a research project.
Economics, Smith University	• Students are required to attend a coursework module in the first term on research methods, with a significant focus on econometrics.

Interestingly, across the four HEIs, the institutions have remained rather passive and do not explicitly require the introduction of formal educational processes into their PhD programmes. Instead, the introduction of formal coursework and the organisation of these processes has been left to the departments (see Table 5.2), and there are

three methods through which departments brought about their initiatives. The different methods of organising and recognising formal coursework as part of PhD education underlined the fact that we cannot continue to assume that students of a discipline undergo a homogeneous learning and developmental process in becoming researchers, and suggested that these processes are very much individual learning experiences for students.

The first method can be observed in the two Departments of Chemistry where the coursework is organised formally. The course structure of these two departments revolves around a research group and a laboratory, where a student at the start of the PhD is assigned to a supervisor and becomes a member of both the supervisor's research group and the laboratory. The only exception was one research group in the Department of Chemistry at Taylor University, which was not laboratory-based.

The ways in which these two departments organised its coursework have close relations to the initiative of Doctoral Training Centres (DTCs). Over the last decade, PhD education in this country has seen the introduction of DTCs which brought major changes by providing structure in PhD programmes and emphasising the use of a learner-based approach. The details of the initiative were provided in Section 3.3 (p. 95) and Section 4.6 (p. 197), but in relation to the place of formal coursework in PhD education, one of the major characteristics of the DTC was the establishment of a more explicit structure by having a series of courses in the first year of a four-year PhD programme. The DTC initiative began as a specific initiative in the sciences, and the ways in which this initiative shaped and influenced the two Departments of Chemistry differ considerably.

The Department of Chemistry at Hodgkin University has two PhD programmes: a "traditional" PhD and a Doctoral Training Centre (DTC) PhD, with the latter partially involving the Department of Engineering. This Department of Chemistry organised and administered the two PhD programmes and students separately, although the two programmes involved the same group of academics in the department as supervisors, and the research projects of students from the two programmes were intended to be conducted in similar laboratories. There were two PhD Programme Directors to oversee the running of each programme, different allocations in terms of laboratory consumables and budgets for training, and separate facilities such as seminar and common rooms within the same building. Importantly, by separating the two PhD programmes administratively, partly for convenience in administering the programme but also to ensure the traditional PhD programme of the department remained unaffected, students on the traditional route experienced a different set of educational processes as compared to their peers in the DTC. For example, the DTC PhD students have to attend a series of courses related to chemistry, formal training within the DTC programme to develop generic and research skills, as well as extra-mural activities such as organising exhibitions to promote science in schools. In contrast, the traditional PhD students were not provided with the opportunity to attend the courses and other forms of training organised using the DTC budget. The 'traditional' PhD students in the department, who were the participants of this study, were also not required to attend any courses related to chemistry and their research project, as there were no courses offered under the traditional PhD programme in this department.

Conversely, the Department of Chemistry at Taylor University did not have a Doctoral Training Centre. However, this department introduced an informal structure by organising its PhD programme with certain elements 'borrowed' from the concept of a DTC, as explained by S10:

> At the moment, it is more like the Doctorate Training Centre. So at Taylor, we have a few formal Doctoral Training Centres [in the university] but what the department is trying to do is that they are trying to make informal training centres, which provide the same sort of education. So even in subject areas where there are no official EPSRC-funded Doctoral Training Centres, the department has set up mini Doctoral Training Centres, and they are trying to encourage all students to be part of one of the centres.
>
> -S10, Chemistry, Taylor University-

The intention of an informal DTC in the Department of Chemistry at Taylor University is to provide a formal structure for all PhD students in the department to interact, work and collaborate with academics and students in different laboratories, research groups and other areas of research in chemistry. In addition, a series of formal courses that focused on disciplinary knowledge and generic research skills were made available as 'optional courses', and all PhD students in this department were encouraged to participate.

The idea of a DTC has been introduced differently between the two Departments of Chemistry and clearly illustrated a different set of educational processes experienced by PhD students in the respective departments. While the Department of Chemistry at Hodgkin University had the benefit of having a DTC programme housed in the same building as its traditional programme, students of the latter were not given the opportunity to undergo training and courses related to the field of chemistry. Yet, despite the department not having such a structure and funding, the PhD Programme Director and her departmental colleagues at Taylor University took the initiative to

provide a structured process as similar as possible to a DTC programme for their PhD students, to help them develop their knowledge, skills and capabilities in chemistry.

The second method of organising formal coursework is also found in the two Departments of History. The departments differ in their approach, and there was particular variation in terms of the role of formal coursework and the extent to which formal coursework was emphasised and introduced as an educational process of the PhD. In both departments, there was no coursework in the PhD programme. However, as a way to complement the absence of formal coursework, both Departments required a Master's qualification in History, regardless of the HEI or modes of study, as a criterion for admission into the PhD programme. This requirement was explicitly stated in the admission procedures of the Department of History at Taylor University, and according to the PhD Programme Director it was also implicitly administered in the Department of History at Smith University in the selection and admission of PhD students. The assumption underlying this criterion is that PhD students who have a Master's qualification already possess a substantial level of proficiency in terms of their disciplinary knowledge, disciplinary skills and research capability. Hence, this criterion illustrates an example whereby the department utilises the resources at the Master's level as a form of educational process to develop the knowledge, skills and capabilities of PhD students prior to admitting them into the PhD. In addition, the requirement of a Master's qualification in the field of history, but not in chemistry and economics, also demonstrates the different emphasis placed on students' previous educational background across disciplines and departments.

The third method of organising formal coursework is observable in the Departments of Economics. In contrast to the Departments of Chemistry and History, coursework has a significant role as an educational process in both Departments of Economics, but the extent to which this process is emphasised again varies between the two departments. In the Department of Economics at Keynes University the PhD programme was known as a "US-styled PhD Programme", and claimed by the PhD Programme Director to be significantly different from the PhD programmes offered by other British HEIs and Departments of Economics. One of the major characteristics of the US PhD programme in the field of economics is a comprehensive coursework component at the beginning of the PhD, which typically lasts for two academic years and covers a breadth of subjects including microeconomics, macroeconomics, econometrics and other related courses. As the Department of Economics at Keynes University claims to be a "US-styled PhD in a UK university", the two-year coursework became a major part of the course structure of the PhD:

> The main thing is that we have moved from the traditional British system, where students come in with a Master's degree and then do an MPhil (Master of Philosophy) to PhD. We have moved to more of a US style programme where we have integrated the coursework and the thesis-writing portion into a single programme. So we now admit students either without an undergraduate degree or out of Master's into our programme and they do a coursework portion initially, but that is dedicated to PhD students. So for one or two years at the beginning, they take courses together before they start their research.
>
> -D1, Economics, Keynes University-

The coursework, which comprises six modules, is mandatory for all PhD students in this department, and is aimed at developing disciplinary knowledge, disciplinary skills and research capability to the level of proficiency expected of a PhD student. Four of the six modules focus on disciplinary knowledge – microeconomics, macroeconomics,

and two areas of specialisation related to the intended research of the student. There is one module on disciplinary skills (econometrics), and a module requiring the student to write a project paper summing up what he or she had learnt in the course and proposing the intended research project for the PhD. These modules, apart from being an educational process that equips students with the knowledge, skills and capabilities to proceed with their PhD research, are also considered by students as an educational process that will enhance their employability and prepare them for a non-academic career. It is believed that through learning and developing a variety of knowledge, skills and capabilities related to economics through these modules, their employability in gaining employment for jobs in non-academic sectors such as banking and consultancy will be enhanced, as explained by St13:

> Well, the goal of all these courses is to bring us as close as possible to the frontier of economic research, and I think that it was very useful to ensure that we are going to write a thesis that is interesting and up-to-date in terms of the research methods that we use. And I think that to a certain extent, these courses are also useful for those of us who are going on to the private sector. For example, we studied microeconomics, which is quite general in scope, where we studied the business cycle, labour market, and basically things that make us effective to a certain extent in banks or other [private] institutions.
>
> -St13, Economics, Keynes University-

Similarly, there is also a coursework requirement for PhD students in the Department of Economics at Smith University, but the emphasis here is very different. Every PhD student in the department is required to attend a one-term module on research methods with a strong focus on econometrics. This module is seen as a formal educational process introduced by the department to help PhD students to learn and develop the necessary disciplinary skills for them to conduct their research. However, this department does not have the emphasis as the Department of Economics at

Keynes University on the learning and development of disciplinary knowledge and research capability. The notably different emphasis was rationalised as follows:

> What they now do here and in other departments more so, is to have compulsory courses that PhD students must attend to refine their preparation and so on. I think it depends, for instance economics in Marx University,[3] they do have taught courses for first year PhD students that are incredibly tough. It seems sort of excessive because the Master's degree is already very tough and it covered 360 degrees of models and topics from microeconomics to macroeconomics. Doing the same range of modules when you are doing a PhD, I think is totally irrational because if I am doing a PhD in macroeconomics or game theory, [why] do I want to know about Bayesian econometrics, for instance? So using your own resources and a lot of time and a lot of thinking to studying Bayesian econometrics, when I am not using it at all for my work, [it] doesn't make a lot of sense. So it might make more sense to sort of have a choice, for example if you are doing microeconomics [research] you must do microeconomics courses, and if you are doing econometrics [research] you must do econometrics courses. I don't think having yet again another set of courses is a helpful thing. We don't have quite as much over here, as we are a small department, but we do have a taught course that they must attend.
>
> -S15, Economics, Smith University-

Although S15 is not the PhD Programme Director of the department, the way she rationalised the absence of an extensive and elaborated coursework in the PhD programme of her department to some extent may reflect the stance of the department and her colleagues. Relating to her own experience, where she did an extensive and structured coursework component during her PhD similar to the programme at Keynes University, she opined that getting students to decide on the coursework according to their specific learning needs in relation to their PhD research is a more efficient and effective way to develop PhD students. This suggestion differs from the coursework in Keynes University as well as Marx University, which requires all PhD students in economics to undergo an extensive set of modules that cover the

[3] Marx University is a pseudonym for another UK university which has a structured coursework component in its economics PhD programme, where S15 did her PhD.

entire breadth and depth of economic knowledge. The different emphasis and thinking behind structuring the formal coursework therefore highlighted the need for those involved in designing the educational processes in the PhD to understand the individual needs of the students, and to be flexible in providing the necessary support for students to develop in becoming researchers. The examples of introducing formal coursework also show that it is not only about making the educational processes of the PhD much more structured; also, an appropriate yet flexible structure is very much needed due to the strong research element of PhD education, which makes the learning in the PhD highly individualistic.

To summarise, examining the role of coursework across the six departments in three disciplines highlights the ways and the extent to which coursework and other formal educational processes are structured, organised and emphasised. In addition, coursework and other formal educational processes are also found to vary across departments within the same discipline, for example the introduction of coursework in one of the Department of Chemistry, and the different emphasis on the breadth and depth of coursework across the two Departments of Economics. These differences across departments within the same discipline further illustrate the ways and the extent to which these formal educational processes are shaped and influenced by the norms and cultures not only of a discipline, but also of a particular HEI, its departments and the academics involved.

More importantly, the ways and the extent to which formal coursework is organised across the six departments, particularly between two departments in the same discipline, highlight some differences about the role of formal coursework in preparing

students to become researchers. It is clear that the role and influence of formal coursework is conceptualised differently by academics in the Departments of Chemistry, where those at Taylor University believed that formal coursework would benefit all PhD students and therefore introduced an informal DTC structure. Conversely, academics in the Department of Chemistry at Hodgkin University differ in their thinking about the role and influence of formal coursework and do not see the need to expose their students to a 'traditional' PhD programme with a DTC structure. Similarly, academics in the Department of Economics at Keynes University have a strong and clear idea about the importance of a broad 'curriculum' of formal coursework in economics, which clearly differs from S15's rationale that PhD students need more focused coursework that is relevant to the research they are undertaking. Clearly, there are differences among academics in a similar discipline, and to some extent there may be mismatches in their understanding and ideas about the role and influence of formal coursework as an educational process in the PhD.

The differences across the six departments in terms of the ways coursework was introduced and structured have underlined the importance of learning and development in PhD education to have some degree of flexibility in catering to the needs of individual students. While there were inconsistencies in the ways of organising the courses, the effectiveness of having structured processes remained an important point for consideration. Hence, it is important to consider the balance between having a structured process and certain flexibility to cater the needs of each student.

5.5. SEMINARS AS FORMAL EDUCATIONAL PROCESSES

Besides coursework, departments have also attempted to make seminars one of the formal educational processes. In particular the two Departments of History, which do not have formal coursework at the level of the PhD, as well as the two Departments of Economics after the coursework phase, integrated their departmental seminars as a formal part of their PhD programme.

Across the four Departments of Economics and History, PhD students were not merely encouraged but required to attend seminars as part of their educational process. The intention of the seminars was to provide a sense of community and a social situation for PhD students in these disciplines who might otherwise have tended to follow a more solitary experience compared to their peers in the Departments of Chemistry, who work in groups in laboratories. Therefore, the Departments of Economics and History made these seminars a formal educational process for their PhD students by regulating and making it mandatory for students to attend. Conversely, although there were also departmental seminars in the Departments of Chemistry, PhD students were not required or mandated to attend these seminars by the department.

Seminars have been introduced and organised across the following departments:

- The Department of History at Smith University organises an annual Postgraduate Symposium for its PhD students to present their work.
- The Department of Economics at Smith University requires all PhD students to attend the weekly seminars organised by the department, and the intention of these seminars is for PhD students to learn by observing how other academics

present their work and to keep the students up to date with developments in the field of economics.

- The Department of History of Taylor University has fortnightly seminars, known as Research Training Seminars (RTS), which are mandatory for all PhD students who have yet to pass their formal upgrade assessment. These seminars consist of presentations by academics on different aspects of research in the field of history, and PhD students have a single opportunity to present their work in this seminar as part of their formal assessment.

- The Department of Economics at Keynes University has mandatory Work-in-Progress (WIP) Seminars for all academics and students, and is structured and organised according to the area of specialisation. The intention of these weekly seminars is for academics and students in a similar area of specialisation to present and discuss their work. On average, a PhD student will have to present their work in these seminars at least twice in an academic year.

Although the four departments may have introduced a seemingly similar formal educational process in the form of departmental seminars, these seminars are organised differently in terms of the approach, duration and level of required participation of PhD students and academics. Consequently, these differences have brought varying effects and influences on the learning and development of PhD students, which can be explained using the concept of 'community of practice' (Lave and Wenger, 1991; Wenger, 1998), specifically the way in which 'observation' and 'participation' are defined and differentiated.

The concept of 'community of practice' provides an explanation that can help us to better understand the ways and the extent to which departmental seminars influenced the learning and development of PhD students. In explaining how learning takes place through participation in a community of practice, Wenger (1998) describes and differentiates 'observation' and 'participation':

> Observation can be useful, but only as a prelude to actual engagement. To open up a practice, peripheral participation must provide access to all three dimensions of practice: to mutual engagement with other members, to their actions and their negotiation of the enterprise, and to the repertoire in use (p. 100).

Looking across the four departmental seminars, the 'Work-in-Progress' (WIP) seminars in the Department of Economics at Keynes University are the only example where there was active engagement and interaction between students and academics in the educational process, and this co-participation (Billett, 2000) between students and academics had an important role in the learning and development of PhD students, which St12 explained:

> We have WIP every week. ... These seminars are very useful; you don't get feedback only from your supervisor [but] you get it from a small group of people working in the same field. ... I mean generally, it also depends a lot on the group because most people don't only talk to their supervisor, you always have a supervisor and an advisor, [but] you are supposed to talk to different people and it is usual to do that and all the other members of the faculty know what your research is.
>
> -St12, Economics, Keynes University-

The account of St12 illustrates an important point: it is not only the supervisor who takes an interest in the research of their students. Collectively, academics in the same area of specialisation in the department also keep up with the development and progress of students on a regular basis through the seminars. Furthermore, one of the major characteristics of the WIP seminars is a platform for both academics and

students to present their work and gain feedback, which demonstrates the active engagement, interaction and co-participation of students and supervisors in this educational process.

As a result of the strong rapport developed between academics and students through the WIP seminars, PhD students of the Department of Economics at Keynes University demonstrated a greater sense of appreciation in recognising the expertise of other academics in the department. This sense of appreciation is specifically present in the accounts of students from this department, where students explicitly shared and talked about the ways in which other academics in the department played a part in helping with their research project and their learning and development through informal interactions. For example:

> Other academics in the department have been also very helpful. Because everyone has very specific knowledge [and] one project probably involves many different aspects, you could ask some other experts on the issues they have been working on.
>
> -St3, Economics, Keynes University-

Such explicit accounts from St3 and St12 regarding the roles and influences of other academics apart from their supervisors are almost non-existent in the accounts of PhD students from the other five departments. A major factor contributing to this peculiar trend of the informal role and influence of other academics in this department was linked to the Work-in-Progress (WIP) seminars. The WIP seminars provided a platform for academics and students to meet on a weekly basis to discuss each other's work, thereby developing a strong rapport within their particular area of specialisation in the department. The link between this strong rapport and the WIP seminars was articulated by PhD students, who described the important role of other academics in

that research involves different knowledge, skills or techniques, and they acknowledged that their supervisors are not expert in all these aspects. Hence, the rapport and understanding developed through the WIP seminars enabled students to engage and interact not only with their supervisors but also with other academics in their area of specialisation, appreciating their expertise and seeking advice and help informally from other academics rather from relying solely on their supervisor to address the problems they encountered in their research. The rapport and understanding also led students to articulate the explicit role and influence of other academics on their learning and development. In other words, the WIP seminars successfully allowed students to co-participate and fostered a sense of participation in the community of researchers within their area of specialisation in the Department of Economics at Keynes University.

Furthermore, as the Department of Economics at Keynes University does not have a formal assessment process in place during the research phase, the WIP seminar can in some ways be considered a substitute for the missing formal assessment. The students suggested that because they were required to attend a weekly seminar that only involved students and academics in the same area of specialisation, these seminars assumed an implicit monitoring role. Because the seminar involved a small and concentrated group in the department, and every student was required to present at least twice in an academic year, the presentations and the constant interaction among academics and students ensured that PhD students were carrying out their work. Hence, the WIPs had an indirect and implicit role that helped the department to monitor the progress of PhD students, on top of the other informal monitoring by supervisors.

Conversely, the annual Postgraduate Symposium organised by the Department of History at Smith University was an educational process that mainly involved PhD students, with limited participation from academics within the department. The PhD Programme Director in the Department of History at Smith University shared that the annual symposium has mixed success, as students have not always been keen to participate. Thus, in comparison to the WIP seminars, the lack of participation among students and academics, and the infrequent once-a-year interaction and engagement, suggest that this educational process in the Department of History at Smith University had less level of influence on the learning and development of students.

The departmental seminars organised by the Department of Economics at Smith University and Department of History at Taylor University also had significant differences in terms of the levels of influence on the learning and development of PhD students, due to different levels of participation by the students. Although the students in these two departments were required to attend their respective departmental seminars regularly, their involvement was rather passive since they tended to assume the role of audiences and observe the presentations made by academics, so that there was often a lack of actual engagement between students and academics. Hence, the departmental seminars were an educational process for the students to learn and develop generic skills and capabilities, such as presentation skills, by observing the academics. Although the observation may have developed students in terms of their skills and capabilities more broadly, these students were not always able to relate the departmental seminars to their own research project.

Table 5.3. Level of Students' Participation in Departmental Seminars

Department	Level of Participation
Economics, Keynes University	• Students observe and engage with academics • Students have access to understanding the academics' actions, their negotiation of the enterprise and their 'repertoire' in use
History, Smith University	• Students observe and engage with other students • Limited access to academics
Economics, Smith University & History, Taylor University	• Students mainly observe in their capacity as audience and have limited opportunity to present their work • Specifically in the Department of History at Taylor University, students are only given a single opportunity to present their work in the seminar and the presentation is part of the formal assessment process

Although these four departments all incorporated seminars as a formal educational process in some way, the seminars in each of the departments had different levels of engagement for the students (see Table 5.3). The different levels of engagement further suggest varying level of effectiveness in terms of the desired outcomes in relation to the participation of students. However, the Department of Economics at Keynes University was the only department among the four that provided the opportunity for students and academics to 'access all the three dimensions of practice' leading to mutual and actual engagement between academics and students. As the approach, intensity and level of participation in these departmental seminars brought about different effects and influences on the students' learning and development, it is important to understand the different degrees of engagement experienced by PhD students in a common formalised educational process. It is also important for departments to identify gaps between the intended objectives underlying an educational process, and the approach, duration and level of participation of PhD students in this process. For example, if a department intends for PhD students to

'participate' rather than 'observe' during departmental seminars, then the department and its academics have to consider whether PhD students have been provided adequate opportunity through these seminars to 'access all the three dimensions of practice', and to encourage students to 'move gradually from the peripheral to the core of the community' (Wenger, 1998). The gap between the intended objective and the approach, duration and level of participation of an educational process also highlighted a potential mismatch and tension in the usage of seminars as educational processes in the PhD.

5.6. CONCLUSION

PhD education has undergone significant formalisation with the introduction of assessment during the course of the PhD, as well as through formal courses and seminars. The formalisation initiatives have been driven predominantly by the concerns about unstructured and poor supervision, the perceived lack of knowledge, and unsatisfactory completion rates. However, the introduction of formal assessment and coursework in PhD education, driven by these concerns, has been implemented differently across the four HEIs and six departments. The variations underlying these processes have made the educational processes more complex.

For instance, assessment processes have an important role in the educational processes of the PhD. The need to introduce some form of monitoring of the progress of a student's project and his or her ability to conduct PhD research has led HEIs to introduce the transfer/upgrade mechanism as part of the PhD programme. However, the general framework of transfer/upgrade has been adapted to the culture, norms

and needs of the departments, and the six departments introduced different ways to carry out the assessment and monitoring. Some departments opted to use a series of tasks, while some chose to carry out assessment more frequently. There was even a department which did not have any form of formal assessment during the research phase of the PhD.

The variety of the assessment processes across the departments has different implications for and influences on the learning and development of their students. From the students' perspective, they tended to have positive experiences and considered a rigorous and structured assessment process to be useful and important. This finding illuminates the complexity of the need to monitor PhD students across the institutional, departmental, interpersonal and individual levels. On top of that, the empirical findings from the students' perspective can also be taken as feedback for departments, suggesting that they should think about the processes that are in place, particularly their appropriateness and effectiveness. Furthermore, the involvement of a wide range of actors, including other academics and peers within and outside the department, has highlighted the need for departments to take into account these actors and their level of involvement, with the need for a clearer description of their roles in developing effective assessment processes that support the learning and development of PhD students.

Similarly, the ways in which departments chose to introduce coursework and use departmental seminars also illustrated the complexities underlying the educational processes in the PhD. There are clearly different ideas about the role and influence of coursework among academics and supervisors within the same discipline across

departments and HEIs. While some academics see the need for an extensive range of coursework to ensure PhD students have sufficient disciplinary knowledge and skills, other academics feel that PhD students only need to focus on the knowledge, skills and capabilities that are directly relevant to their own PhD research. Furthermore, the variations in the way departments organised their seminars and the students' level of participation suggest that departments and academics need to be more conscious of the fact that introducing an educational process does not necessarily provide adequate support for students. The mechanism, level of involvement and the types of activities are the essential factors that ensure that students are able to benefit effectively from the educational process.

This examination of the formalised assessment processes in PhD education has further reiterated the importance of considering the needs of the student. The various assessment processes, coursework and seminars underline that the learning and development of PhD education, although increasingly formalised and structured, must remain relevant to individual students in supporting their learning and development. Without a consideration of the needs of the students, the formalisation of PhD education may not address the problems that prompted these initiatives to be introduced; rather, it may be detrimental to the progress of students.

In some ways the formalisation processes has brought about greater consistency in the educational processes in the PhD within a department. For instance, because students in the Departments of Economics and History were required to attend departmental seminars, this requirement will at least have ensured that every PhD student has the opportunity to learn, rather than relying entirely on their supervisor. The formal

coursework requirements in some departments are also attempts to bring all PhD students to a common level of disciplinary knowledge and skills while they are doing the PhD. However, there is great inconsistency across departments, even within the same discipline, in introducing formal educational processes. These differences across departments and HEIs provided an opportunity to identify and share best practices in their respective PhD programmes as a method for continuous improvement. The criteria of identifying best practice can be beneficial to PhD education as long as the needs of individual students are taken into account and there remains flexibility in introducing these processes across departments or HEIs, guided by a clear objective that effectively supports PhD students.

The next chapter will shift the focus to examine the Skills Training Programme in PhD education, which aimed to develop generic and transferable skills among PhD students as a way to address concerns for their employability. Hence, the chapter will concurrently explore the provision of generic and transferable skills across HEIs, as well as the ways in which employability is understood by academics and administrators at institutional and departmental levels, supervisors and students.

Chapter 6

Skills Training and Employability

Skills Training is a formal initiative introduced across HEIs yet departments have incorporated it in various ways as part of the training in their PhD programmes. This chapter examines the ways and the extent to which actors – supervisors and students – understand and participate in skills training. This training, as interpreted and organised across HEIs and departments, illustrates a highly diverse and complex process, which led to some mismatches and tensions within and across actors at different levels. Alongside the skills training, this chapter also examines the issue of employability, which has been the driving force behind the Skills Training Programme at the policy and institutional level. It becomes evident that there are mismatches in terms of the idea of employability from the perspectives of students and supervisors, and these mismatches have wider implications for PhD education.

6.1. THE SKILLS TRAINING PROGRAMME

The Roberts Agenda is the mechanism through which the formal initiative to provide skills training in PhD education has occurred. It has been premised on the proposition that the development of generic and transferable skills will enhance the employability of PhD graduates (RCUK, 2001). The description of the programme was elaborated in Section 1.3 (p. 23). This initiative, financially supported by the Research Councils, outlined the *Joint Skills Statement* (JSS), which is a checklist of the skills a student is expected to develop over the course of the PhD. Furthermore, PhD students who are

funded by the Research Councils have a portion of their scholarship allocated for this purpose. These skills are generic and transferable, cutting across disciplines. The JSS evolved into the *Researcher Development Framework* (RDF) in 2010 (Vitae, 2010a; 2010b; 2010c), so it is important to note the interviews conducted in this study were carried out before the introduction of the RDF. Therefore the discussion of the Skills Training Programme only refers to the Roberts Initiative as characterised by the JSS.

Across the four HEIs examined in this study, generic and transferable skills have become a part of PhD education. However, there were variations in terms of how the Skills Training Programmes were structured and organised across the four HEIs. Two of the HEIs – Hodgkin and Smith Universities – de-centralised the provision of skills training according to the sciences, social sciences and arts and humanities, while the other two HEIs – Keynes and Taylor Universities – set up a centralised university-wide unit to handle this programme across the university. In addition to the ways in which the programmes were structured, there were also variations in terms of how these programmes were emphasised within the HEI and the different emphasis in some ways determined the approach that an HEI took in delivering the programme.

On the one hand, two of the institutions – Keynes and Smith Universities – adopted a *laissez-faire* approach to provide skills training, whereby students were encouraged to attend courses and training to develop skills. However, the list of courses and training available in these two HEIs was not published in the Handbook for students, and most of the courses and training were organised from time to time on an ad hoc basis and publicised to the students via emails and notifications on notice boards. Furthermore, there was no monitoring procedure in place to make sure students took up the

training, and in the case of Smith University, the only requirement was for new students to undertake a *Learning Needs Analysis* with their supervisors.

On the other hand, Hodgkin and Taylor Universities took a structured approach in introducing skills training. These two institutions outlined an extensive menu of courses and training for students to choose from and participate in. The menu of courses was provided to students in their course Handbooks at the start of their PhD, and updated through a separate guidebook given out at the start of every academic year. From the long list of courses offered by these two institutions, it was possible to categorise them into various genres to illustrate their varieties and diversities.

For instance, the university-wide Graduate School at Taylor University provided courses that aimed at helping students to maximise the potential of the PhD programme for their development, such as self-help and management courses, and to develop specialised research skills, information technology, language, communication and career-based skills and capabilities. In a similar way, the courses offered by the Faculty of Science at Hodgkin University also aimed at developing research-related skills, key skills such as communication and problem solving, and employment-related skills, as well as information technology skills.

Not only did Taylor and Hodgkin Universities provide a long list of courses and training for their PhD students; the two HEIs also required each PhD student to attend ten days per year of skills training. The intention underlying this requirement was to make sure that PhD students took up the training.

The ways in which the Skills Training Programme were structured, organised, and emphasised, and the approaches used by the HEIs, as well as the variety and diversity

of the courses involved, illustrated different forms of complexity. First, the variety and diversity of the courses, which can be categorised into many genres, highlight potential challenges in defining what are considered to be generic and transferable skills. Second, the differences across HEIs demonstrated an initial attempt to re-interpret institutionally the externally driven idea to incorporate generic and transferable skills training as part of the PhD. The extensive lists of courses offered by two HEIs were examples of the ways in which institutional administrators and academics operationalised their provision in the form of the JSS prescribed by the Research Councils. However, the re-interpretation did not end at the institutional level. Instead, there were subsequent re-interpretations of the Skills Training Programme at the departmental, interpersonal and individual levels across the four HEIs.

6.2. RE-INTERPRETATION BY DEPARTMENTS

Although the Programmes have particular structures at the institutional level, it is the ways in which these programmes are re-interpreted and delivered at the departmental level that impact most on the students. Across the six departments, the provision of skills training has been further re-interpreted, whereby some departments introduced a more specific structure for its students and other departments adhered to the institution-specified requirements or approaches. Table 6.1 illustrates the re-interpretation that took place between institutional and departmental levels, outlining the different approaches across HEIs, and the ways and the extent to which departments re-interpreted and implemented skills training in their respective programmes.

Table 6.1. Provision for Skills Training across the Four Institutions and Six Departments

Institution & Department	Provision for Skills Training
Hodgkin University	• Skills training is de-centralised to the various Faculties, for example the Faculty of Science, which the Department of Chemistry belongs to. • A structured approach is adopted. • The Faculty of Science requires PhD students to attend ten days per year of skills training for three years (DocH1).
Department of Chemistry	• A structured and flexible approach is adopted. • The Department designated a number of courses related to chemistry and made them compulsory for its students. On top of the compulsory training, students had the flexibility to choose courses and training according to their individual needs. • Instead of ten days per year, the department specifies eighty hours of skills training in an academic year.
Keynes University	• Skills training is centralised at the University's Teaching and Learning Centre (TLC). • A *laissez-faire* approach is adopted. • Skills training is not mentioned in any institutional or departmental documents. Methodological skills and language skills were the only skills explicitly highlighted in the general description for the PhD programme in this institution (DocK2).
Department of Economics	• The department does not put any emphasis on this training at all. Most of the academics and students do not even know the existent of such training and courses.
Smith University	• Skills training is de-centralised to the Graduate Schools by discipline, for example the Graduate School of Social Sciences (Economics) and Graduate School of Arts and Humanities (History) (DocS4). • A *laissez-faire* approach is adopted. • New students are required to undertake a *Learning Needs Analysis* with the supervisor.
Department of Economics	• The department encourages its students to participate in courses and training organised by the Graduate School of Social Sciences.
Department of History	• The department encourages its students to participate in courses and training organised by the Graduate School of Arts and Humanities.

Taylor University	• Skills training is centralised at the University's Graduate School. • A structured approach is adopted. • PhD students are required to attend ten days per year of skills training and an electronic log is used to keep track of students' participation and progress (DocT2).
Department of Chemistry	• A structured and flexible approach is adopted. • Instead of ten days per year, the department specifies twenty points. Students can accumulate one to two points for each training or course they attend, as well as points for activities such as demonstrating in the laboratories for undergraduates, presenting papers or posters at conferences, or other related activities that are approved by the PhD Programme Director.
Department of History	• A structured and specific approach is adopted • The department identifies the skills that are important for historians, such as foreign language proficiency, and organises specific courses and training for its students. • Students are not aware of the ten-day or twenty-point requirement practiced by the institution or other departments.

The spirit of the JSS was intended for generic and transferable skills to be a needs-based provision. As Alpay and Walsh (2007) argue, the provision of Skills Training is intended to be driven by needs in terms of four aspects: student, supervisor, programme, and institution/external, and the most important needs should be those of the student. Recognising the importance of understanding the needs of students, Alpay and Walsh (2007) pointed out that two diagnostic tools were recommended alongside the programme: the Learning/Training Needs Analysis (LNA/TNA), and Personal Development Planning (PDP). These tools were intended to help students identify their needs and develop a plan for them to concentrate on the skills they need to improve.

However, the ways in which HEIs and departments carried out the Skills Training Programme clearly differ from the original intention. The Department of History at

Smith University was the only exception, requiring supervisors to carry out a Learning Needs Analysis (LNA) with students who began their PhD in the academic year 2010/2011. The intention was for supervisors to use the LNA as a tool to monitor and assess the needs of students in terms of their skills and capabilities, and to direct students to attend courses and training provided by the Graduate School of Arts and Humanities at Smith University. Nevertheless, apart from the requirement of conducting the LNA in the first term, this department does not have other tangible initiatives to encourage students to attend training and courses to develop their skills and capabilities, and nor there is any form of monitoring to ensure students do so.

Although the LNA was outlined in documents published by Smith University, its Department of Economics did not seem to urge or encourage supervisors and students to carry out the analysis. The need to conduct the analysis to identify learning or training needs before taking up courses was left to the initiative of the students. Students who take this initiative have to proactively approach the Graduate School of Social Sciences. However, in the Graduate School of Social Sciences a Training Needs Analysis (TNA), which is similar in nature to the LNA, has been listed as one of the courses that students may choose to attend.

Hence, even with the LNA or the TNA, the ways in which departments and HEIs understand and use these tools differs considerably. On the one hand, departments and HEIs may use them as tools to help supervisors and students understand their needs more accurately, but on the other hand departments and HEIs may simply consider the analysis to be another course which students can choose to attend if they want to know their own training and learning needs. More importantly, the ways in

which LNA or TNA have been used to some extent illustrate the keenness of the department and its academics to understand the needs of their students. It may suffice for them to introduce a series of courses if the students know what they need and want to learn. However, if students are not clear about their learning needs, a more detailed and careful design and implementation of the programme is needed, including tools such as LNA or TNA to make the learning and development more effective.

Apart from the differing ways in which LNA/TNA have been re-interpreted across departments, highlighting the ways in which the needs of students have been taken into account, the Department of History at Taylor University has taken another approach to cater for the individual needs of its PhD students. This is the only department of the six which adopted the idea of skills training outlined by the institution and tailored the training specifically to meet the needs of its individual students. However, instead of giving the students flexibility to choose their own courses and training to fulfil ten days of training in a year, the department identified specific skills and capabilities that are considered useful for historians, and introduced a department-specific process to achieve this intention.

To provide a clearer understanding of the structured and specific approach taken by the Department of History at Taylor University, there is a need to understand the administrative arrangements involved. The understanding of different administrative arrangements across different departments underlines more clearly the extent to which a department can proactively re-interpret and introduce a specific process to support students.

St4 is a PhD student funded by the Arts and Humanities Research Council (AHRC). For every AHRC-funded PhD student, the department receives £850 for the provision of generic, transferable and research skills training. However, as St4 has two supervisors, one from Taylor University and another from Macaulay University (not one of the four HEIs sampled in this study), she developed an understanding of the different arrangements and the ways in which the two HEIs and their Departments of History organised the provision of these skills.

On the one hand, the procedure in Macaulay University was to put the £850 allocated for each AHRC-funded student into a university-wide centre, which then provides the necessary training for all PhD students in the HEI. This procedure is common in HEIs that have centralised the provision of skills training, including Taylor University. The training provided for the students by the university-wide entity includes generic and transferable skills, as well as other forms of training that are inter-disciplinary. With regard to the disciplinary or individual-specific training, such as advanced foreign language training, a maximum of £200 can be made available upon request from the student, if he or she is funded by AHRC.

On the other hand, as St4 states:

> what Taylor University does is the History Department takes possession of that money [£850], and they use it as they see fit. The first thing they do is they put them [the PhD students] on a course at Taylor University's Graduate School to study Basic German, and then they use that money [£850] to send their students for residential courses. Usually it is Germany, because German medieval history is very important.
>
> -St4, History, Taylor University-

Clearly, the two history departments that St4 was affiliated with had introduced contrasting processes and procedures to help PhD students develop their disciplinary,

generic and transferable skills. At Macaulay University, as well as in the other departments of Taylor University where funding is centralised to provide skills training for all students, the Department of History at Taylor University has a structured and specific arrangement in collaboration with the Graduate School, specifically to cater for the needs of each PhD student in the department and to help them develop disciplinary as well as generic and transferable skills. Thus, building on the structured approach of Taylor University, the Department of History adds on specific aspects by identifying the types of skills needed for each student and designing a personalised programme of skills training accordingly.

Hence, although a structured approach is used in Taylor and Hodgkin Universities, the example of the Department of History at Taylor University demonstrates how a department can play a significant role in re-organising specific processes for its students and programme. Furthermore, in both Taylor and Hodgkin, which took a structured approach at the institutional level, departments could choose to remain flexible in letting students decide the training according to their needs, or to be specific in instructing students to develop certain skills and capabilities. The examples of these departments and HEIs illustrate clearly how educational processes can be organised and re-organised across different levels, and more importantly, highlight the role of academics in the department to initiate re-interpretation and re-organisation to meet the needs of their students.

In contrast, the Department of Chemistry at Taylor University and its counterpart at Hodgkin University have continued using the structured approach prescribed by their respective HEI, but with some degree of flexibility for their students. These two

departments operationalised the 10 days requirement into 20 points and 80 hours respectively, and gave students the flexibility to choose courses and training as long as they met the requirement. Apart from one or two courses related to chemistry, students could choose any courses provided in their respective Graduate Schools. In the case of the Department of Chemistry at Taylor University, activities such as presenting a poster or paper at a conference or attending a conference, talk or seminar are among the things that students can claim toward their points. In fact, a number of students from this department who participated in the study had not attended any formal training, and most of their points were gained from preparing and presenting posters, and attending conferences, seminars and talks.

In other words, these two Departments of Chemistry did not play an active role in the provision of skills training, and their role was mainly to convey information, encourage students to participate and monitor that students did in fact take up the training opportunities. To support the department in monitoring the progress of the students, Taylor University introduced an electronic log which required students to journal their progress in their research project as well as their participation in courses, training and activities which would award them points.

The Department of Economics at Keynes University was the only department of the six which had not initiated or encouraged its students to participate in skills training organised at the institutional level. The only skills training which appeared to be important to the department was disciplinary skills and research capabilities, which were included in the two-year formal coursework as part of its PhD programme (see Section 5.4, p. 230). The lack of response and an adverse attitude among the

academics and students in this department concerning generic and transferable skills training highlighted the seeming lack of emphasis placed on the institution-led programme. Importantly, the example of this department has once again demonstrated the extent to which a department can significantly re-interpret and modify the perceptions of institution-led initiatives, in this case altering the perceptions of its students about skills training in the course of the PhD.

Clearly, the re-interpretation and implementation of this initiative across HEIs and departments has contributed to the complexity relating to the Skills Training Programme. The intended outcomes of the initiative driven by the needs of the students, which was to use diagnostic tools to help students understand their needs and chart their own development plans, have been transformed into an initiative driven by the needs of the programme in most departments. The only exception was the Department of History at Smith University, and to some extent its counterpart in Taylor University. The needs of the programme, as Alpay and Walsh (2007) explained, focus on indicators such as the number of courses organised, the take-up rate, and attendance at workshops and training.

Furthermore, there was also a subtle shift in ideas about the importance of skills training – or, to be more precise, of generic and transferable skills. What began as a policy initiative to incorporate these skills and enhance the employability of PhD graduates has been taken in different ways in different HEIs, who have adopted different strategies to introduce and organise skills provision in their institutions. Although HEIs were compelled to introduce these skills because the initiative was accompanied by significant funding from the Research Councils, all four HEIs

introduced skills training with different degrees of emphasis. Subsequently at the departmental level, the responses to skills training further illustrated the different ideas held by actors at this level, as compared to the policymakers and administrators at the institutional level. On the one hand there were departments which simply went along with the instructions of the HEI and did not proactively encourage such initiatives. On the other hand there were departments which seized the opportunity to make full use of the funding to emphasise research and disciplinary skills, instead of generic and transferable skills. The Department of History at Taylor University was a good example of the latter. More importantly, what was clear across the six departments was that the idea of generic and transferable skills has been interpreted in slightly different ways at the departmental level, leading to variations in emphasis and focus on the various needs of students, programmes and institutions. However, the needs of supervisors been neither mentioned nor taken into consideration, and neither has the provision for generic and transferable skills training linking to the concept of employability been articulated at the departmental level. The next section will explore the perspectives of supervisors, follow by those of students.

6.3. SUPERVISORS' PERSPECTIVES ON SKILLS TRAINING AND EMPLOYABILITY

The nature of the Skills Training Programme, which is intended to develop generic and transferable skills that cut across disciplines, is such that it typically takes place outside the traditional supervisory relationship. This arrangement outside the supervisory relationship has been attributed to create an impression that the initiative is an external influence on PhD education (Hinchcliffe, 2007). Therefore, supervisors and

academics are considered the most significant opposition to this initiative, and their strong resistance has been rationalised in three different ways.

First, since PhD education in the UK over the last decade has been under some pressure to ensure timely completion within three to four years, supervisors tend to believe that the additional generic and transferable skills training is a waste of time and a distraction from the research work. Second, as Hinchcliffe (2007) claimed, academics also tend to distrust the provision of the formal training and consider that this training is either "intellectually, politically or morally unsound or unprincipled" (p. 8). The vocabulary used in the discourse of Skills Training is also claimed to be business- and industry-oriented, giving the impression of not being academically rigorous. Third, supervisors and academics are also of the opinion that the training of generic and transferable skills should be the responsibility of industries and businesses, and PhD education should prepare students for a career in academia or research.

However, the findings of this study from the perspective of supervisors painted a slightly different picture. Although some of the reasoning articulated by Hinchcliffe (2007) was echoed by the participants in this study, the sentiment was definitely much more subtle and optimistic. From the perspectives of supervisors and PhD Programme Directors, there were four main issues raised in relation to Skills Training Programmes and employability. However, before examining each of the issues, it is important to note that supervisors considered generic and transferable skills to be a subject closely associated with employability, and these two subjects were at times referred to in conjunction with each other. Hence, the focus on generic and transferable skills as well

as employability will be discussed together in this section on the perspective of supervisors.

The Role of Supervisors

The first issue concerns the role of supervisors in the provision of skills training and the enhancement of employability in PhD education. There were supervisors who strongly believed that it was part of their responsibility to help students to develop these skills and their employability, regardless of whether the formal initiative was in place or not. Supervisors shared their experiences and what they had done beyond the formal Skills Training Programme to support students in developing skills that were more generic and transferable, and in enhancing their employability. However, supervisors tended to consider the development of these skills and capabilities to be secondary to the research and disciplinary skills, and the initiatives taken were self-initiated.

First, a supervisor can play a part in helping his or her student to develop their employability for both academic and non-academic careers. As S1 indicates, a supervisor can play a massive part in enhancing a student's employability for an academic career by getting them acquainted with the academic community. Through a simple act of introduction to other experts in the area, a supervisor is able to help in enlarging the network of his or her students. S1's PhD supervisor did this for him, which helped him to go on and develop his own academic career:

> My own PhD supervisor introduced me to a very old Emeritus Professor, who is a world-renowned professor, whom I got to know and he wrote me a reference which enabled me to get the post-doctoral position in [a world renowned university in the United States] and my PhD supervisor did that

> because he knew that his own word, his own reference won't carry as much weight [and] won't open that door for me. But he knew that I wanted an academic career, a higher level of post-doctoral is what you need for that and so he went about trying to make that happen for me.
>
> -S1, Chemistry, Hodgkin University-

Similarly, a supervisor can also play a part in enhancing a student's employability for a non-academic career. In the case of S1, he initiated various opportunities for his students to equip them with the experience and capabilities related to getting a job in the industry. One of these was to arrange a three-month work placement at an industrial laboratory for one of his students, and to organise mock job interviews to familiarise his students with the kind of problems and questions they might be asked in the future. The idea behind S1's informal initiatives was to give his students as much exposure as possible to the actual situation in the industry while they were still doing their PhDs. Hence, the students would be able to prepare better, developing the knowledge, skills and capabilities needed to get a job in the industry and relating what he or she is doing with the needs of the industry – for example, connecting part of their PhD research with a practical and industrial application, which would help develop the student into a more rounded researcher.

Second, a supervisor may play a more implicit part in helping his or her student to develop their employability for an academic career. S18 shared that even a discussion between supervisor and student about the choice of research topic for the thesis may have an impact in helping the student to become more employable in academia:

> I think one thing is to guide them in their choice of research topic. Just take the example of history, as strange as it seems, because there has been a lot of research done by PhD students, but there are certain fields that remained very popular like British history. So if I have a student who is wavering between doing a topic on British or European history, I would say do European history. Because if you look at the number of candidates for

> [academic] jobs, there are always dozens and dozens of them for British history, [but] far fewer for European history. And if you take it even further, the most popular area of study in European history is French history. So if somebody has the language skills or commitment to do German or Italian or even Eastern European history, they have got a much better chance of getting a job at the end of the PhD. That is the first thing I guide them in, the choice of research topic, because some posts are just going to be much less competitive than others.
>
> -S18, History, Smith University-

Through the discussion to select a research topic for the student and his or her subsequent area of specialisation, a supervisor can provide guidance because of his insider's knowledge of the field by steering the student to develop a niche in a particular area or topic that may have better prospects. This niche will then put the student in a good position to compete for limited positions in academia, and implicitly it may also enhance the student's employability specifically within the academic labour market.

Third, while there may be more interactions and opportunities to collaborate with peers in Departments of Chemistry and Economics due to shared facilities such as laboratories and common rooms, PhD students from more diversified and smaller departments may not have similar opportunities. For example, the Department of History at Smith University had a relatively small population of PhD students, so that students have to create opportunities to interact with their peers. S13 encouraged his PhD students to organise a student conference to widen their network and interact with peers who shared a similar research focus from other departments and HEIs. S13 introduced the idea to the students, provided the budget for the conference and helped to promote the conference by putting the organising students in touch with his colleagues in other HEIs.

The student conference supported the learning and development of PhD students in two different ways. First, the conference was an opportunity for PhD students to interact with their peers, to present their research work and to gain feedback. Furthermore, this was also an opportunity for the students to widen their networks through meeting other PhD students in the same research area, as well as developing their identity as researchers in a particular area of research. Second, the process of organising the conference was also an opportunity for the students to develop a range of skills and capabilities that are generic and transferable, such as management and organisational skills. Thus, the student-organised conference and network are examples of educational processes outside the formal Skills Training Programme, which provided opportunities to support and influence the learning and development of PhD students through interaction with peers.

Fourth, the PhD Programme Director of the Department of History at Taylor University introduced a practice whereby PhD students were invited and encouraged to attend and observe job interview presentations in the department. It was typical for departments to require candidates for an academic position to give a presentation as part of their job interview. Hence, this department openly invited and encouraged its students to attend these presentations with the intention of familiarising them with job interviews. The PhD Programme Director, D3, explained:

> All of our students are encouraged to go to the [job interview] presentation when there is a job opening in our department and watch these performances so that they actually see what the ritual is, what sort of typical mistakes are, and what other successful candidates do well.
>
> -D3, History, Taylor University-

By observing and participating in these presentations as audience members, the department provided the opportunity for students to learn and develop relevant skills and capabilities that would help them to deliver a convincing presentation in the future, as they will have to go through a similar process when they apply for academic and teaching-related positions. Implicitly, involving PhD students in such processes can also be understood as a form of support beyond the formal Skills Training, to help them in developing the necessary generic and transferable skills to gain employment after the PhD.

Fifth, while many PhD students have the opportunities to develop generic and transferable skills by being involved in teaching activities, there were students whose research was not laboratory-based and who had limited opportunity to interact with undergraduate students. This was the case with a research group in the Department of Chemistry at Taylor University, where their work was computer-based and the supervisor (S10) did not have any teaching responsibilities himself. However, as a way to compensate for the absence of a laboratory and to provide an opportunity for his PhD students to develop teaching skills, S10 initiated a series of 'extracurricular activities' for his students:

> So our research is about the chemistry and physical water commonality and we try and get that across. That is relevant to people who want to understand cloud formation and that is the initial stage of cloud formation, or the airline industry are interested, they don't like it when the aeroplanes crash. Usually that happens because ice forms on the wings. So that is the research that we do and we try to explain it to people. Yes, so we even made an iPhone game about our research. That was made by all the guys in the group and it is on iTunes which you get it for free. It teaches people about nano-science and about ice.
>
> Another thing we do is, our group is quite interested in the public understanding of science, and so we do a lot of sidetrack activities. So a guy in the group had made a series of quite funny videos, in which one of the

> PhD students is a fake television character and he teaches people about science. And so we do a lot of these things where we are not just concentrating on the research, but they are really trying to have fun.
>
> -S10, Chemistry, Taylor University-

The extracurricular activities, developing an iPhone application related to their research and producing videos for public education, illustrated an educational process for PhD students to develop their generic and transferable skills. Instead of developing these skills by demonstrating for undergraduates in the laboratory, which is a common teaching-related activity for PhD students in the sciences, these activities provided a platform for PhD students to develop teaching-related skills such as communication and presentation, whereby instead of 'teaching' the undergraduates through laboratory demonstration, tutorials or lectures, these PhD students were teaching and communicating scientific concepts to the audiences of their educational videos. Similarly, by transforming the concepts and knowledge of their research into the iPhone application, these PhD students had to learn and develop the relevant and necessary skills and capabilities to translate and convey their specialised knowledge and scientific concepts into practical knowledge for a wider audience, the users of the application. Hence, the process of producing the video and developing the iPhone application provided valuable opportunities for students to develop characteristics such as creativity, teamwork and communication skills, which ultimately may also enhance their development of generic and transferable skills and employability.

The examples of S1 introducing his students to other eminent academics and exposing them to the research community in the industry, S18 guiding his students to decide a research topic, S13 supporting his students to organise conferences and develop their network, D3 inviting students in his department to attend job interview presentations,

and S10 introducing extracurricular activities, collectively demonstrated the self-initiatives of supervisors who played an active and explicit role in enhancing the employability of their students. These initiatives took place outside the formal programme to develop generic and transferable skills and enhance students' employability. Importantly, the explicit role of supervisors also indirectly demonstrated their belief in the importance of developing these skills and capabilities while doing a PhD, but the research work remains the most important priority of PhD education across these examples.

The Suitability of Supervisors

While some supervisors supported the importance of developing skills and capabilities, as well as enhancing the employability of their students, there were also supervisors who argued that the role of supervisor should firmly focus on the academic and research aspects of the PhD. This argument was raised with regard to the question about the suitability of a supervisor to advise and guide students on matters pertaining to generic and transferable skills and employability, which are essentially non-academic and non-research in nature. For example, S2 described:

> Generally, I am a man of a certain age. [In terms of] presentation skills and generic skills, staff and students are much better than I am anyway.
>
> -S2, Chemistry, Taylor University-

Although S2 is a supervisor, he concurred that there were many instances where he sought assistance from his PhD students and staff on matters related to generic skills. For instance, in preparing materials for presentation, he often sought help from students and staff on preparing presentation slides, printing posters and handouts,

and other information technology (IT) issues, which he contended was due to his lack of proficiency with IT and presentation skills. Intuitively, S2 considered that he had more to learn from the students about generic and transferable skills than they could learn from him. The remark by S2 therefore raises the following question: Is it always appropriate for a supervisor to assume an active role in guiding the development in generic and transferable skills in PhD students? Clearly, the example of S2 suggests otherwise.

Similarly, one of the PhD Programme Directors (D1) remarked that the PhD programme in his department only focuses on research and academic aspects:

> As Keynes is one of the top PhD programmes [in economics], naturally a lot of our students end up going into academia, and I guess academia is what we the faculty basically know best.
>
> -D1, Economics, Keynes University-

As D1 contends, academics tend to have a better understanding about academia, and therefore a greater focus may be given to guide students to progress into research and academia, as compared to giving advice and guidance about non-academic and non-research aspects. Furthermore, academics in D1's department also tended to have the idea that an academic career would be the ideal career destination for PhD students; supervisors who participated in this study expressed this idea either directly or indirectly. Due to this shared understanding among academics that prioritised an academic career, students who participated in this study from the Department of Economics at Keynes University explicitly described the lack of advice from academics and supervisors on non-research and non-academic matters.

The Motivation to Learn

There were supervisors who were critical about urging PhD students to take up the training on offer without understanding their motivation to learn. As S16 argues, PhD students tend to be a group of self-selected individuals who are fundamentally different from undergraduates or Master's students. PhD students tend to have a career in mind or a very specific reason for pursuing a PhD, and these students may not be interested in improving their overall skill set. Thus, requiring all students to undergo some form of training in generic and transferable skills may not motivate them.

The formal Skills Training Programme has also been described as overly bureaucratic, particularly in departments and HEIs which adopted a structured way of organising the initiative. Commenting on the provision of Skills Training in the Department of Chemistry at Taylor University, S11 explained that by requiring students to fulfil twenty points every academic year, many students have attended courses and training which they were not interested in, merely to fulfil the requirement. Hence, students were learning skills and capabilities that neither enhanced their skills and capabilities, nor motivated them:

> Essentially, I think quite a lot of students find that they are scrambling around for things that will give them points and they end up almost forced to go on courses that they are not interested in, just to get the points from them.
>
> -S11, Chemistry, Taylor University-

Supervisors such as S11 and S16 were not merely being critical of the Skills Training Programme; they were genuinely concerned about the motivation of the students to take up the training. For instance, S11 articulated that if students have a clear idea of

what they need and want to learn in terms of generic and transferable skills, and if they were provided with the opportunity to do so, the formal Skills Training would be a good initiative. Although students might have to spend time away from their research, which was the reason some of his colleagues opposed the initiative and supported by the work of Hinchcliffe (2007), S11 rationalised that the time spent on the training was relatively short in comparison to the entire length of the PhD. A short time away from their research was not detrimental to the students' progress, but was in fact a worthwhile investment, provided students were doing what they wanted to do instead of merely fulfilling the requirements. The accounts of S11 and S16 clearly highlight the fact that supervisors are concerned about their students having the right motivation to learn these skills and capabilities, rather than wasting time just to gain points and meet requirements.

Erosion of Academic Authority

There has been concern among supervisors and particularly PhD Programme Directors about the perceived erosion of academic authority in managing their PhD programmes. Two of the PhD Programme Directors (D2 and D4) voiced their concern that the autonomy of the department to chart its own PhD programmes has been taken away due to the introduction of the formal Skills Training organised at the institutional level. As formal Skills Training was organised either university-wide or in the respective Science, Social Science or Humanities divisions, departments have been discouraged from organising in-house training and courses for their students with the rationale of avoiding duplication and the wastage of resources within the HEI.

Therefore, students can only attend the training organised outside the department, and PhD Programme Directors and supervisors have the perception that they have lost absolute control over charting the learning and development of their students.

Furthermore, there was also a sentiment among academics that the formal Skills Training was not fully an academic agenda. From the way they commented about the initiative, academics considered this to be a form of external influence shaping PhD education, and to some extent they reiterated the sense of losing some autonomy on matters pertaining to the learning and development of students. This external influence can be inferred from S11's remark as follows:

> We need to go back to one of your earlier questions, maybe this is a way in which PhD training has changed, in that there is almost this necessity to do stuff not directly related to your research. There is this necessity to go and gain transferable skills, go on your course on business management or spreadsheets or whatever that you don't actually need to complete your PhD but, now someone is saying, "Yes, you do need this to do this".
>
> -S11, Chemistry, Taylor University-

However, while PhD Programme Directors and supervisors considered the formal initiative to be an external influence that eroded the academic autonomy of departments in terms of their PhD programmes, there was an example earlier where a PhD Programme Director had successfully re-organised the provision of generic and transferable skills in his department. The Department of History at Taylor University was the only department of the six, which had successfully taken charge of the generic and transferable skills of their students. This department, with the cooperation of the university-wide entity that organises and manages formal training, had initiated a specific plan for each of its students to learn a foreign language related to their research area, using the budgetary allocation for the Skills Training Programme.

However, while the proactive initiative of this department to specify skills for its students is commendable, strong proponents of the Skills Training Programme may disagree. The fundamental principle of the Skills Training Programme at the policy level is for generic and transferable skills to be broader than research and disciplinary specific skills. The difficulties encountered by the PhD Programme Directors of the Department of Chemistry at Hodgkin University (D2) and the Department of History at Smith University (D4) underlined the resistance they faced in dealing with administrators and managers of the university-wide entity who advocated that these skills are generic and should be organised at the institutional instead of the departmental level. This difference in viewpoints may highlight a possible mismatch between actors at the departmental and institutional levels, as well as across stakeholders involved in funding decisions at the policy level.

Summary

In summary, supervisors and PhD Programme Directors generally did not object to the formal Skills Training in the ways illustrated by Hinchcliffe (2007), who reported that supervisors considered the training was a waste of time, a distraction from the research work, academically not rigorous and that it should not have been part of PhD education. However, supervisors and PhD Programme Directors, albeit with some criticisms of the provision of the programme for being too bureaucratic and not taking adequate account of the needs and motivation of students, generally accepted that Skills Training and employability have a part to play in PhD education, although they should remain secondary to the research work. Furthermore, self-initiated efforts of

supervisors in developing generic and transferable skills and enhancing the employability of their students have further demonstrated the belief of supervisors that they can also play a role in supporting their students in this respect. Ultimately, the primary concern of supervisors was putting the focus on the needs of individual students and how best to address these needs within the Skills Training Programme.

6.4. STUDENTS' PERSPECTIVES ON SKILLS TRAINING

An understanding of skills training in PhD programmes is incomplete without a thorough examination of the students' points of view. From this perspective, there was a mixture of responses about the perceived usefulness and importance of developing generic and transferable skills, but it is important to note that the Skills Training Programme across the four HEIs involved a wide variety of skills that were considered generic and transferable. In the earlier section, I pointed out the difficulties of defining what is meant by generic and transferable when the programme includes skills that typically ranged from personal development, specialised research skills, information technology (IT), professional development, career-related skills, language and communication skills, self-help skills, and entrepreneurship. Hence, the wide variety of skills may have been one reason for the mix of responses gained from PhD students about the perceived usefulness and importance of generic and transferable skills.

However, the mix of responses also raised a question: Why did students consider some skills to be important and useful, while other skills were deemed less important and even irrelevant? To a certain extent, the question and the mix of responses can be explained by the presence of a 'context' – more specifically, the relevance and

applicability of the skills to support the educational process. The importance of having a relevant and applicable context to support the development of skills is clearly reflected in understanding the perspective of PhD students about generic and transferable skills.

The types of generic and transferable skills that were identified as most helpful, interesting, beneficial or important to the students were skills that they could connect to a context and purpose. To PhD students, the most common, relevant and applicable context which they could relate to the development of a skill was their own research project. For example, IT-related skills, such as using software to manage their references and to write their thesis, were considered by most students to be useful and beneficial. Furthermore, presentation and communication skills were also regarded as beneficial to students in helping them to present and communicate their work more confidently.

The following example further demonstrates the importance of context in shaping the learning and development of skills. For many PhD students, learning and developing the skills to use Photoshop software during their PhD may seem to be irrelevant. However, St16 considered this IT-related skill to be useful and beneficial to him. The major reason that contributed towards St16's perceived benefit from learning and developing the skills to use the *Photoshop* software was the presence of context whereby he had been able to relate this skill to managing and editing images in the presentation of his thesis. In other words, he was not merely learning another skill, which may be transferable to many different contexts; he was able to utilise the skill to improve the images he generated from his experiments and present these images

more aesthetically in his thesis. The thesis has remained his major context and purpose for learning:

> They are IT in general. … For example, using Photoshop to improve images that you might be using in papers and thesis … So these ones are general but they are pretty useful for writing thesis.
>
> -St16, Chemistry, Taylor University-

The example of St16 not only highlighted but also reiterated the importance of a context in shaping positive opinions about the learning and development of skills. Conversely, students could have negative opinions and may tend to avoid the types of skills they deem to be irrelevant to their PhD or unhelpful to their research. The major reason underlying this negative perception can be explained by the lack of a relevant and applicable context for the students to learn, develop and apply these skills. The following provides a notable example of a negative opinion about personal developmental skills from the perspective of a PhD student:

> Courses like "How to not be stressed" were ones [that I avoided] and I have seen those talks before during my undergraduate degree, and things like keep your work emails separate from home emails and don't check your work emails at home, for example, do not check your work emails outside the office. This is something that I am unlikely to do actually as my email is connected to my phone. It is not going to happen and it doesn't stress me out, it stresses me out more not knowing what is in the emails. And that was one example [of the courses that were not helpful].
>
> -St15, Chemistry, Taylor University-

The course on "How to not be stressed" was one of the skills encapsulated in the personal developmental skills programme. The negative opinion of St15 about courses to develop skills to help PhD students organise their personal life was due to the lack of a context for him to apply what he had learned, which might then require him to dramatically alter his everyday routine and lifestyle. Hence, the development of such a skill is deemed as wasting time because the student did not have a relevant context for

him to apply, which resulted in a negative impression about the training and the learning of the skill.

In addition, students also had a negative opinion about skills which they considered to be generic or too general, although such skills may relate somewhat to their research or may be specifically designed to cater for students of a particular discipline. For example, St18 shared a negative opinion about attending an IT-related course for students in the field of arts and humanities. The course was aimed at developing the skill of making databases using computers, and it was one of the courses offered by the university to support arts and humanities students in developing their generic and transferable skills. However, to St18 it was the lack of an applicable context for him to apply what he had learned and developed that contributed to his negative opinion about the skills training provided for PhD students in Smith University:

> It must be specific to what I was doing. I go [to the] British Library training day that looks at different source materials. That sort of thing, definitely I am interested. I am not interested in university-run courses that were kind of general. I have been to a couple of them. They are just not interesting. I went to one about using computers in arts and humanities to make databases, which has nothing to do with me.
>
> -St18, History, Smith University-

In contrast, St18's interest was in learning archival skills in the course offered at the British Library. The interest on archival skills once more highlighted the presence of a relevant context, whereby St18 can learn the skill and develop it by applying what he has learned in his PhD research project.

Similar to St18's experience, St14 also had a negative impression about attending skills courses which were inter-disciplinary, even within social sciences. St14, who was a PhD student from the Department of Economics at Keynes University, attended one of the

skills courses about "Creative and Original Research"; she shared some initial positivity about the course:

> I went to one, which was doing "Creative and Original Research". It was more about thinking outside the box and how to go about being a PhD student. I do not know how useful it was but it was also interesting because you meet a lot of PhD students from completely different fields. It was like a three-hour training workshop about mental maps and mind maps for a while, and then it was more like writing about an imaginary object and just writing down some ideas and having someone else read it and give each other feedback. That was interesting ...
>
> -St14, Economics, Keynes University-

However, as the "Creative and Original Research" course is meant to be inter-disciplinary and is aimed at developing the research capability of PhD students across the social sciences, St14 remarked that while she found the course interesting, the course has not been helpful to her as a PhD student in economics:

> ... but, it was just like one three-hour workshop and you are not really going to get that much. But I guess, you cannot really teach someone to do research. There is no recipe and you have to kind of work it through in your way. Also, we [in economics] do not do that much writing, it is not as important as if you are doing [research] in Government or Politics, but [we use] more of models and equations.
>
> -St14, Economics, Keynes University-

The negative impression of St14 was not due to the skills or the structure of the course, but essentially about the lack of a context where she could apply the skills learned from the course. As PhD research in the field of economics is typically aligned towards the technical aspects of modelling an economic phenomenon using quantitative data, the skills that St14 perceived to be important or useful were about developing mathematical models and equations, rather than related to creative and original research ideas.

Not only generic and transferable skills, but rather any skill and capability that may add value to a research project could be considered helpful, interesting, beneficial and important to students. For instance, students across the six departments highly regarded the importance of developing disciplinary skills, generic research skills and teaching skills in the course of the PhD. Disciplinary skills, such as econometrics (for economics), palaeographics (for history) or crystallographics (for chemistry), were considered important and useful to the students because this range of skills was needed for them to conduct research in their respective discipline. Their research project, therefore, became the relevant and applicable context. Similarly, generic research skills, notably writing and presentation skills, were also seen as useful and important by students. The writing of reports and theses as well as presentations in the course of the PhD, were considered as the context for PhD students to use and practice these skills, which shaped the sense of their importance. Teaching skills, albeit not directly related to the research project, were also considered useful, beneficial and important to PhD students. The range of generic and transferable skills under the umbrella term of teaching skills, including communication, presentation and management skills, were useful to the students because teaching activities provided a relevant and applicable context, so that PhD students developed a sense of the usefulness and importance of acquiring and developing teaching skills.

The question of learning and developing a skill in PhD education has been debated in the literature (Barnarcle and Mewburn, 2010; Clanchy and Ballard, 1995; Green and Powell, 2005; Hopwood, 2010). Cumming (2010) summarises the debate as driven by employers and policymakers based on the deficit model of skills development, and the views of students have frequently not been considered. The findings in this section

have contributed to the debate by highlighting the perspective of PhD students and the ways in which a relevant and applicable 'context' has played an important part in the development of skills among PhD students. Therefore, the learning and development of skills is not only contingent upon HEIs and departments having a structured and formalised range of courses, or the proactive initiatives of supervisors to help and support their students. Most importantly, the learning and development of skills is fundamentally related to the need for a context for the students to apply what they have learned and developed; specifically in the case of PhD education, the research project and the thesis were the most useful context. Hence, regardless of whether there is a deficit in skills in the labour market or otherwise, the implementation of Skills Training should give serious consideration to helping students to identify a relevant and applicable context to support their individual needs for learning and developing generic and transferable skills.

In addition, while the structured approach used by some HEIs to provide a Skills Training Programme has brought about greater consistency in the educational processes, which aim to develop generic and transferable skills, this consistency may not translate into greater effectiveness in the development of these skills. Instead, the presence of a relevant and applicable context was found to be the key to enhancing the effectiveness of generic and transferable skill development among students.

6.5. STUDENTS' PERSPECTIVES ON EMPLOYABILITY

Policymakers, working on the assumption that there has been a shortage of skills in PhD education (Roberts, 2007), believed that introducing the Skills Training

Programme as part of the PhD programme would develop skills and capabilities to help PhD graduates become more employable. However, students strongly associate the learning and development of skills and capabilities with the need for an applicable and relevant context, and they are not necessarily driven by concerns about employability.

Employability does remain an important point of consideration for students, but from the students' perspective, employability is not linked to the provision of skills training. Instead, students tend to associate employability with their purpose of pursuing a PhD and their ability to do research. Across the six departments, students clearly recognised the central role of research in PhD education, but there was an underlying disciplinary variation in terms of how PhD students associate the purposes of learning to do research and developing to become a researcher with their career aspirations and their notions of employability.

In the two Departments of Chemistry, PhD students tended to relate the PhD with learning to do research and the intention of pursuing a non-academic research career in the discipline. Students saw the PhD as a form of 'licence to practice' as a researcher, whereby without a PhD, they would have encountered a 'glass ceiling' that could have hindered their advancement in the research-intensive industry, as shared by St6:

> Because I like the idea of research over just going out and getting a regular job, because as far as I could tell from the end of a degree, even with a Master's, you will struggle to get very far in research without a PhD anyway. You will struggle to get very far within that is directly relevant industry, at least. You have kind of reached a glass ceiling that [for] people with PhD would not be a problem.
>
> -St6, Chemistry, Hodgkin University-

The purpose of pursuing a PhD as a form of 'licence to practice' among the students in the Departments of Chemistry was multi-faceted, but equally important in terms of learning to do research, developing to become a researcher, and also to enhance their employability and job prospects so they could access jobs in research-related industries.

In the two Departments of Economics, students did not seem to have a pre-determined idea about their intended or preferred career destination, and they were generally indifferent about pursuing a career in academia or not. To the students, the pursuit of the PhD was considered an important purpose in and of itself and the PhD degree was considered the 'licence to practice' as an economist. The indifference among students was further reflected in the diversity of career destinations that they intended to pursue after the PhD, including academia, consulting, policy advising, banking, and corporate and financial industry.

In the two Departments of History, there were two typical groups of students: young and mature. The 'young' PhD students typically pursued the programme on a full-time basis, without substantial work experience, and their main intention in pursuing a PhD was to enable them to have an academic career thereafter. To these students, a PhD degree was a stepping-stone to get a job in university, or at least in the education sector. Hence, employability was also a point of consideration to these students in pursuing a PhD, and the qualification and their ability to conduct research or to teach were assets that would make them more employable for jobs in the education sector.

Conversely, for the mature PhD students in the Departments of History, employability was never a point of consideration or a motivation for them to do a PhD. These

students typically pursued their PhD on a part-time basis, they had an existing or previous career, and their primary reason for pursuing a PhD was simply learning to do research and exploring further their interest in a particular area of history. For example, S3 had two mature students in their fifties when they started their PhDs. One of them came from a well-known family in the UK with a big family archive, and her PhD project was about the family, using the archive as a source. Another notable example was St22, who was seventy-nine years old and had a career as a school master. Prior to undertaking the PhD, St22 had previous experience with research, and had published a book and some articles in history. His purpose in pursuing a PhD was to have structured and more advanced guidance on how to conduct research:

> I thought a doctoral course would put me under supervision, perhaps I did not need the discipline, but I needed to be guided and helped at various stages. So the supervision has been important in shaping up the research. I am glad I did it and it was useful to do it that way. I could have done it on my own but I need to really have a proper structure of study.
>
> -St22, History, Smith University-

These mature students in the Departments of History were perhaps the only group of students who were pursuing a PhD without the idea of enhancing their employability and career intentions. The intention of S3's students was just to pursue their personal interest and as a form of lifelong education, while for St22, the PhD represented a structured and guided way of learning to do research with the support of a supervisor. This group of students does represent the minority, and they tended to pursue PhDs in the field of arts and humanities.

In general, PhD students across the six departments were concerned and were aware of issues surrounding employability to greater or lesser extents. However, the idea of employability from the students' perspective is strongly related to the PhD

qualification and their ability to conduct research, which is believed to enable them to access the jobs they are interested to pursue. Successfully completing a PhD and producing research which demonstrates their research capabilities and disciplinary knowledge are therefore the keys to enhancing their employability.

6.6. CONCLUSION

Clearly, there are differing viewpoints about generic and transferable skills and employability in PhD education across external stakeholders, academics and students. First, the policy view of employability has been driven by a perceived deficit in generic and transferable skills in the labour market, leading to the introduction of formalised courses and training of skills in PhD programmes. Conceptually, employability and research capabilities tend to be viewed dichotomously at policy level, translated into a checklist that outlines generic and transferable skills. HEIs have drawn up and organised programmes at the institutional level, in either a structured or a *laissez-faire* manner, and there was not much room for departments to reinterpret the institutional programme.

Second, despite the limited reinterpretation at the departmental level, there were responses to the institution-specific programmes at the departmental level. From the viewpoint of supervisors and academics, their primary aim was to focus on supporting and helping PhD students to develop the necessary knowledge, skills and capabilities that were reflected in the research project and evidenced in the thesis produced at the end of the PhD. The initiatives to develop generic and transferable skills or to enhance the employability of PhD students were secondary to the PhD research. The lower

priority given to the latter can be seen in the responses of the six departments, which either ignored and disregarded the institution-specific programme altogether (as in the Department of Economics at Keynes University), reinterpreted the programme to support the disciplinary skills of its students rather than generic and transferable skills (the Department of History at Taylor University), or continued the programme in the department in a rather passive manner (the other four departments). Furthermore, from the academic viewpoint, there were also differences among supervisors and academics. Some academics and supervisors saw themselves as having a role to support their students in developing generic and transferable skills as well as in supporting students to become more employable, although this was a lower priority than the research component in the PhD. Conversely, some others were of the opinion that their role and responsibility as a supervisor was limited to academic- and research-related matters. The viewpoints of supervisors and academics were significantly different from the external stakeholders, but there were also differences among fellow academics and supervisors.

Third, from the students' viewpoint, the usefulness of developing generic and transferable skills, or any skills or capabilities for that matter, is heavily dependent on having a relevant and applicable context. The development of these skills must have a specific reason and a context within which students can apply and practice the skills, as opposed to merely having a range of courses and requiring students to attend these courses. This was not sufficient in providing the right motivation for them to develop skills. In addition, students did not associate the learning and development of generic and transferable skills with the notion of employability. Instead, the capability to conduct research, symbolised by the completion of the PhD, was seem as the most

important ingredient to enhance their employability and help them to pursue the career to which they aspired. This viewpoint of students illustrated different interpretations of employability between students and external stakeholders. The viewpoint of students was much more similar to that of the academics and supervisors, which prioritised research and associated capabilities, over the development of generic and transferable skills.

Chapter 7

Exploring the Complexity

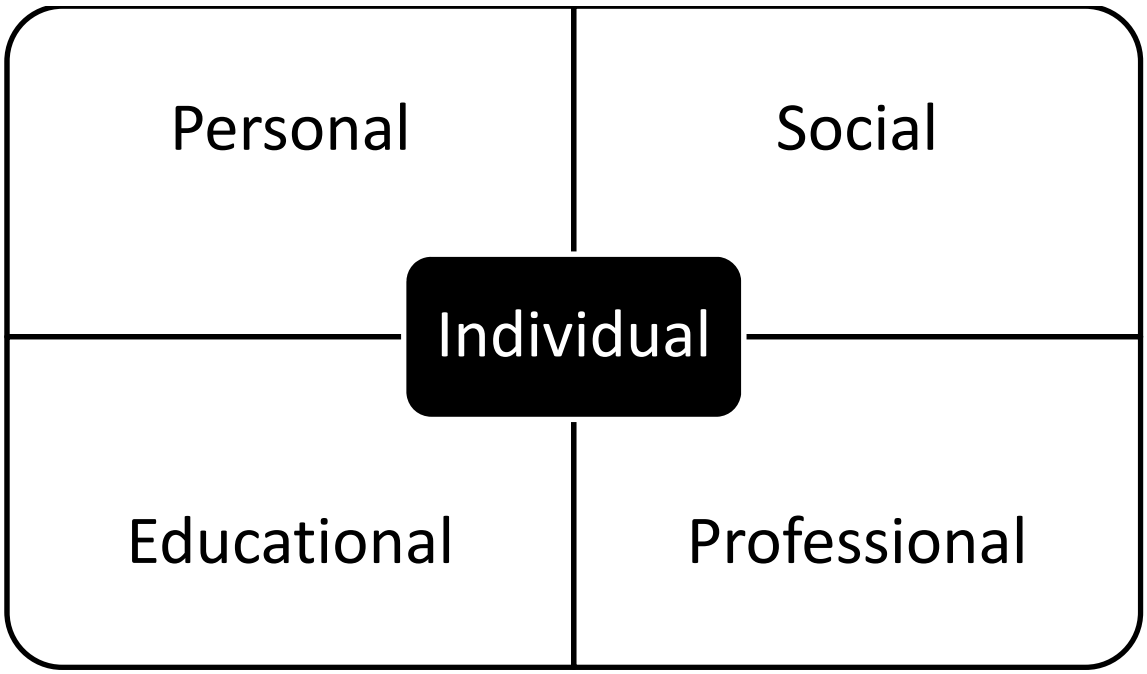
This chapter synthesises the findings and draws some preliminary conclusions about the complexity identified through examining the educational processes of the PhD. There are three forms of complexity identified, which relate to: first, the individualistic nature of the PhD; second, the tensions and contradictions in the form of different viewpoints, expectations and outcomes emerging from the interpretation and implementation of these processes across multiple actors at the institutional, departmental, interpersonal and individual levels; and third, the changing nature of the PhD and tensions stemming from the need to balance its individualistic nature with initiatives to address the collective needs of students in a department or institution.

7.1. AN INDIVIDUALISTIC PROCESS

PhD education and the educational processes which aim to support students to become researchers continue to be predominantly individualistic. The PhD thesis is an individual product of the student, which is expected to demonstrate the individual contribution to knowledge made by the student. The educational processes aimed at developing the knowledge, skills and capabilities of a student, which enable him or her to produce a thesis, also continue to be highly individualistic, with the supervisory relationship being the major educational process. Furthermore, supervisory relationships are also made up of individuals whose personalities, social settings, educational and professional experiences shape the relationships and the activities to

make them into a unique individualistic learning experience. These features were clearly demonstrated in this study, and the individualistic nature of these educational processes has led to complexity as these processes are diverse and distinctively experienced by individual students and supervisors.

Figure 7.1. The Four Domains of Influence at the Individual Level



To gain a more in-depth understanding of this form of complexity, the four domains of influence at the individual level that were suggested in Chapter 2 can provide a systematic way to examine the factors contributing to the complexity. The four domains include personal, social, educational and professional (see Figure 7.1), and it is possible to explain the influences of each domain separately and collectively in terms of individual students and supervisors, and subsequently to examine the ways and extent to which they participate in the educational processes that form a unique yet complex experience. More importantly, through understanding the factors that contributed to this form of complexity, it is also possible to develop more in-depth

insights into these processes, as well as contributing empirical evidence to the existing body of knowledge about PhD education at the individual level.

The Personal Domain

In terms of the influence of the personal domain, there is an extensive literature on the role of gender, age and motivation in shaping the educational processes of the PhD (Acker, 2001; Becher, 1993; Bieber and Worley, 2006; Deem and Brehony, 2000; Delamont *et al.*, 2000; Leonard, 1997). In Chapter 4, the complexity was explored by illuminating the influence of the personality of students and supervisors on the educational processes. Specifically, personality appeared to influence the decisions of the actors involved, such as personal preferences for being laid-back or proactive, and these decisions further influenced the supervisory relationship between student and supervisor by determining the levels of involvement and the activities in this educational process. For example, the problems encountered by one student (St19) with his previous supervisor (see Section 4.6, p. 190) were primarily the result of personality differences. St19 concluded that a clash of personality, which resulted in tensions within the supervisory relationship, began when he felt his supervisor was constantly putting pressure on him. When this clash of personality became evident to the point that it affected his progress, he took the major step of changing supervisor. According to the student, this change of supervisor put him back on track with his PhD; he attributed the support he received from the new supervisor to their more laid-back personality, so there was greater compatibility between him and his new supervisor.

Supervisors also referred to personality when describing useful supervision, talking of the sense of authoritarianism of the supervisor, which at the same time implied some form of submissiveness in the student. The description given by one supervisor, using the analogy of a marriage to describe what she meant by authoritarianism and submissiveness, very much mirrored her strong personality as an individual and her expectations of her students. She also described the importance of the personalities of the student and the supervisor in influencing the supervisory relationship, in a similar way to that in which personality influences a marriage. From these two examples, it appears that the individual personality of individuals can have a significant influence on the supervisory relationship, to the extent that personal preferences such as being laid-back, the level of proactivity of students and supervisors, or the extent of authoritarianism and submissiveness, were personal factors that had an influence on the development of students and contributed to complexity in the processes of a PhD.

The Social Domain

Although PhD education continues to be predominantly individualistic in nature, the study showed the strong social influence on individual students and supervisors. The social domain, which primarily refers to the influence of other actors in wider social circles, included, for example, colleagues, other PhD students, friends and families. This influence on students was seen in this study through departmental seminars organised by the four Departments of Economics and History. The different levels of engagement involving students in the seminars illuminated the importance of the social domain and the extent to which this factor had an influence on their learning

and development. As students were given the opportunity to participate or observe in the social setting, different opportunities contributed to the ways in which students described intended and unintended outcomes in terms of the knowledge, skills and capabilities developed through these departmental seminars.

The social domain also had an influence on supervisors, and consequently had an influence on the students' learning, and this affects the complexity of the educational processes. For instance, the ways in which supervisors interact in a supervisory team appeared to have an influence on the student. Difficulties in arranging supervisory meetings for students who were supervised by a team, and a lack of communication between the supervisors (for example in the case of St20 and St23; see p. 191) highlighted the negative implications for the progress of the students. In contrast, a student (St4) who was supervised by two supervisors in two HEIs had a remarkably positive experience of getting regular supervision. One of the major reasons behind the positive experience of this student was the fact that the two supervisors were compatible as they had been friends and worked collaboratively for many years. These two contrasting experiences demonstrated the influence of the social domain of supervisors on students. Given the move toward PhD students having a supervisory team, the social domain has become a more important influence on supervisors as well as their students, suggesting a need to understand this domain and the extent to which it influences individuals, the supervisory relationship and the complexity of the educational processes involved.

The Educational Domain

The educational domain of the PhD has not been well-examined in the literature, as highlighted in Chapter 2. In this study this domain did have an influence on the educational processes – for example, as seen explicitly in the two Departments of History, where a Master's degree in History was a pre-requisite for entry into the PhD programmes. Hence, by having this criterion for student admission, the implication was that what students learned at the Master's level and their prior academic achievement did have an influence on the individual level of learning and development in the PhD.

However, the influence of the educational domain was much more explicit among the supervisors. While S3 was the only supervisor who participated in this study who did not have a PhD, she was recognised at least within the department as one of the most successful supervisors. The reason she did not have a PhD was that she had enrolled into a PhD programme immediately after her first degree and did not receive much guidance and supervision. After several months she dropped out from the PhD programme and went on to teach in another university and began to get involved in research activities. Despite not having a PhD, she has been a highly involved supervisor who makes a point of meeting her students regularly (see Section 4.5, p. 178), and the high success rate of her students has been attributed to the support they receive from her. Importantly, putting together her success story as a supervisor with her previous experience as a PhD student, we can see the strong influence of the educational domain on the educational processes; S3 appeared to turn her own experiences into ways to ensure her students were not left without guidance and support.

The Skills Training Programme in the different departments showed differences in the responses of supervisors. Some supervisors believed that they had a role in supporting their students in developing generic and transferable skills and proceeded to do so with their own initiatives, while others had reservations about their own competence to advise students on non-academic and non-research matters. These different responses of supervisors underlined the influence of the educational domain as well as the professional domain. For example, S1 was one of the supervisors who proactively initiated many additional informal processes to support and guide his students. This included arranging placements in an industrial laboratory for his students, conducting additional and informal assessments which were beyond the requirements of the department, and simulating job interviews for students in their final year. A strong motivation for S1 to go the extra mile in providing this additional support for his students was the example set by his own supervisor, who had made the effort to ensure that S1 worked in a world-renowned laboratory in the United States as a post-doctoral researcher. In this way he learned from his own supervisor not only knowledge and skills as a researcher, but also the importance of being proactive and concerned for his students as an educator; he translated what he had learned into his current practice as a supervisor. The two examples of S3 and S1 clearly underline a less emphasised but strong influence of the educational domain on supervisors and consequently on their students.

The influence of the educational domain can also be seen in the selection of academics and supervisors, and the ways in which these actors shape the culture and norms in a department as well as the educational processes. The Department of Economics at Keynes University was a case where priority was given to hiring academics who had

obtained a PhD through a US-styled programme. This practice was not so much about the quality of the PhD itself; rather, it was to ensure that academics who joined the department had an understanding and appreciation of the ways in which the PhD programme was structured in Keynes University. The characteristics of the US-styled PhD programme included having an elaborate range of courses and a more communal approach involving other academics in the department. The fact that the previous training of academics was used implicitly as a preference in selecting and hiring new members of staff has further illuminated the influence of the educational domain in shaping the educational processes through the individual supervisors.

The Professional Domain

I also pointed out in Chapter 2 that the influence of the professional domain is also under-researched in the literature. Unlike the literature on professional doctorates which seeks to understand the motivations and aspirations of students pursuing a professional doctorate, this focus is less common in PhD education. This study provided some insight into understanding the influence of the professional domain on the educational processes in the PhD.

In describing the changing model of a supervisory relationship (see Section 4.6, p. 194), the discussion of the respective roles of students and supervisors and the underlying dynamics in the relationship has shed light on the influence of the professional status of these actors within the relationship. While the roles of supervisors may evolve from master to employer to consultant, students' roles also change from apprentice to employee to client. These different roles, the power dynamics and the degree of

control on matters related to the research and funding underline the complexity in the relationship between students and supervisors due to elements within the professional domain.

This study also showed that students had career aspirations and were concerned about their employability. Importantly, however, employability from the students' point of view was understood in a different manner compared to policymakers and employers, an issue which will be discussed further in the next section. Nevertheless, the professional aspirations of students underpinned their motivation to pursue a PhD; gaining an insight into this motivation was important in helping to develop an understanding of the learning and development of the students. For example, PhD students in the Departments of History who aspired to pursue a career in the education sector may have been more strongly motivated to develop the skills and capabilities which would prepare them for a career in teaching. Likewise, PhD students in the Departments of Economics and Chemistry may also be inspired to develop relevant skills and capabilities according to their respective aspirations of becoming economists and scientists. Understanding the motivations and influences from the professional domain of students has enriched our understanding about their learning and development beyond an understanding of them merely conducting research and producing a thesis.

Moreover, the previous professional background of supervisors also had an influence on the development of their students. This was particularly the case when there was concern about the suitability of a supervisor to supervise the student on non-research and non-academic matters; the professional background of the supervisor was an

important determinant to this concern. For instance, although some supervisors argued that their students were more competent in generic and transferable skills, such as presentation or communication, this argument was inevitably about the professional capabilities and experiences of the supervisor. An understanding of the influence of the professional domain on individual supervisors can be particularly helpful in charting the direction and programme for professional development among supervisors, and also for supervisors to think about their need for continuous improvement in supervising their students.

The preliminary conclusion is that the four domains at the individual levels have separately and collectively contributed to make PhD education and the educational processes more complex. The fact that the educational processes of the PhD continued to be predominantly individualistic suggested that the differences across these processes have been influenced not only by the discipline, the HEIs or the departments but also by the personal, social, educational and professional domains of students and supervisors. The findings of this study illustrated the influence of personality, the roles and interactions of students and supervisors with the community around them, their previous educational experiences, and the career-related aspirations and experiences of students and supervisors that shaped the educational processes of the PhD. These findings are also important as they demonstrated the need to examine these domains in order to gain a better understanding of the individuals involved in the educational processes, as a way to gain insights into the complexity underpinning these processes of the PhD.

7.2. TENSIONS AND CONTRADICTIONS

Tensions and contradictions across multiple actors at various levels is also another form of complexity identified in this study. In addition to the complexity resulting from the influence of the four domains at the individual level, it is important to remember that the educational processes of the PhD as illustrated by the multi-level framework (see Figure 1, p. 5) comprise multiple actors and stakeholders across the institutional, departmental, interpersonal and individual levels. From exploring the educational processes across these levels and actors, there is a range of ideas, initiatives, strategies and activities which make up the educational processes. Importantly, the various ideas and initiatives have to be interpreted across the institutional and departmental levels, while strategies, activities and approaches have to be implemented by actors across all these levels to support the development of PhD students. One example is how HEIs and departments define the criteria for the PhD thesis, and how supervisors understand them. Furthermore, supervisors also have to combine their own interpretations of what they consider to be research capabilities in introducing various strategies and activities to help students develop research capabilities, and facilitating a PhD thesis to be produced at the end of the PhD. Similarly, the idea of policymakers to enhance the employability of PhD graduates has led to the introduction of Skills Training Programmes to develop generic and transferable skills at the institutional level. This programme has been subsequently reinterpreted by academics and supervisors and implemented with varying degree of emphasis at the departmental level. Through the many interpretations and implementations, there are tensions and contradictions that have emerged as a result of different viewpoints, expectations and

outcomes about these educational processes which the multiple actors at various levels have.

One of the major tensions and contradictions relates to the different viewpoints. For example, actors and stakeholders have different viewpoints about what they consider to be employability, and how this capability is to be developed during the course of the PhD. It was clear that what policymakers considered to be employability, as articulated in policy and institutional documents and used as justification for specific training in the PhD, was significantly different from what academics and students considered to be employability. On the one hand, the former associated employability with the development of generic and transferable skills to support students in widening their employment opportunities beyond academia. On the other hand, the latter considered the development of research-related knowledge, skills and capabilities to develop their employability. Interestingly, ideas about employability between academics and students were also found to be different to some degree, where academics tended to give less emphasis to employability as compared to the process of conducting the research and producing the thesis. However, students give almost equal emphasis to the research and the completion of the PhD, believing that they become more employable in this process. Hence, the different viewpoints of actors about employability suggest that what is needed to enhance this capability, and how this should have been carried out, differs across the actors. These differences, although not directly influencing the educational processes in terms of the provision of Skills Training Programmes, illuminate the tensions and contradictions underlying the participation and motivation of these actors in the educational processes of the PhD.

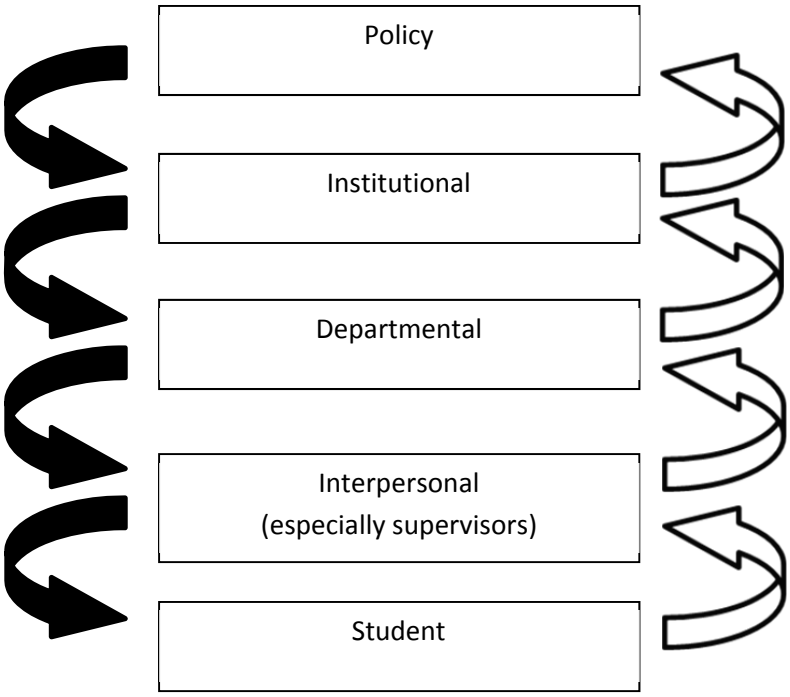
Similarly, there were also different expectations among the multiple actors that contributed to forms of tension and contradiction. First, there were different expectations between supervisors and students in terms of what was considered to be useful supervision. Second, there were also different expectations among supervisors about what each supervisor considered to be research capability, and these differences had an important bearing in determining how this capability could be developed in students through supervision. Third, there were also various expectations of a PhD thesis, and these different expectations across supervisors and students were found to influence the supervision process and the activities involved. Collectively, these different expectations between actors involved in the educational processes are a potential source of tension, contradiction and possibly frustration for the actors involved when expectations are not met.

Furthermore, there were different outcomes to a seemingly similar educational process as a result of interpretation and implementation, and this difference was also a source of tension and contradiction. For instance, although departments have introduced various forms of formal assessment processes throughout the PhD, there were significant differences in the activities used to assess, as well as variation in the duration of monitoring these students. These different implementations led to differing ways and extents to which these processes supported the students. Likewise, driven by the need to provide formal courses and seminars, the idea of assessment led to various ways of implementing the formal processes and different outcomes, as shown in the departmental seminars of the four Departments of History and Economics.

Thus, the interpretation and implementation of these educational processes by multiple actors and stakeholders across the various levels has led to different viewpoints, expectations and outcomes. At times, different viewpoints, expectations and outcomes underlined the tensions and contradictions among actors at various levels. Moreover, the tension and contradiction also contributed to some forms of mismatch that illustrate the complexity underlying these processes, which involve multiple actors and stakeholders across different levels.

However, apart from identifying the complexity in the form of tensions and contradictions resulting from different viewpoints, expectations and outcomes, the direction of interpretations and implementation across various levels also contributed to another form of complexity. It is important to note that interpretations and implementation are mainly top-down. Figure 7.2 illustrates the interpretation and implementation across the institutional, departmental, interpersonal, and individual levels, where the arrows in black are used to represent the interpretations and implementations that have taken place and described in this study. While the evidence gathered in this study highlighted many notable examples of top-down interpretations and implementations, there was a lack of evidence to suggest that feedback in the bottom-up direction had taken place. Feedback from the bottom up is represented by the white arrows.

Figure 7.2. Interpretation and Implementation Across Multiple Levels



Reciprocal feedback from the bottom-up direction can be an important source of information in helping to understand educational processes. Although there are existing ways in which students and supervisors can provide official feedback – for instance, through student representatives in departmental committees or other formal mechanisms for student feedback – the findings from this study suggest that in actual fact there remain limited avenues for students and academics to provide feedback and influence the existing policy, systems or structures of PhD programmes. For example, there was no avenue for students to share their viewpoints about employability and the need for a relevant and applicable context in order for them to develop their generic and transferable skills. As the views of students were not taken into account in setting up the Skills Training Programme either at the institutional or departmental level, this meant that students could only make the best out of the existing system in their own ways, and therefore not only led to complexity and differences in

educational processes due to students' individual responses, but also had implications for the development of skills and capabilities through these processes.

Similarly, there was no avenue for students to provide feedback on their participation in various educational processes. Although students in the four Departments of History and Economics were required to attend their departmental seminars, students were not able to determine or share their views about the ways in which seminars helped or supported them, or how they could play a more prominent or beneficial role in this process. Likewise, although departments had identified the need to monitor students through various assessment processes, students in these departments did not have a platform to provide feedback on how these assessment processes could best support their research projects and development as PhD students. The lack of an avenue for feedback can be seen among students as they participated in this study and were keen and forthcoming in sharing their views and comments about these processes; however, they have not channelled their views and comments to their supervisors, departments or institutions.

Apart from the lack of feedback routes for students, supervisors may also have limited avenues for providing feedback to their departments and HEIs. For instance, supervisors were not able to comment on the ways and the extent to which Skills Training Programmes were organised in their respective departments and institutions. While supervisors might comment and raise concerns – for example, S11 and S16 criticised the overly bureaucratic structure of the Skills Training Programme at the expense of taking into account students' motivations to learn – there were limited opportunities for these supervisors to share their concerns, and more importantly, to

give feedback that might lead to improvements in the existing structure. Thus, providing an avenue for actors to give bottom-up feedback and to influence change in the educational processes of a PhD could be a way not only to understand these educational processes and their complexity, but importantly, these insights can also be an important source of information to enable more effective educational processes to be put in place to better support the development of PhD students.

7.3. INDIVIDUALISTIC VERSUS STANDARDISATION

The supervisory relationship in the PhD has been described as a 'secret garden', which is only accessible to the supervisor and the student and is therefore not subject to much scrutiny (Park, 2005). This analogy also suggests that the educational processes and activities which take place in the supervisory relationship remain highly individualistic, and reaffirms the earlier argument that the complexity of the educational processes is reflected in their high level of individuality.

This complexity has persisted even with the recommendation of having supervisory teams and co-supervision to ensure better supervision. The initiative has not changed the individualistic nature of PhD education. Instead, the supervisory relationship became more complex as additional individual factors entered the picture, which may lead to more tensions and contradictions. Importantly, however, this initiative may not necessarily improve the quality of the main pedagogical process in the PhD as the 'secret garden' has still only admitted one or two other actors, and it continues to be without much external scrutiny.

However, other recent developments in PhD education have shown a tendency to change the nature of the educational processes, from being a solely individualistic process like a 'secret garden' to having a more homogenous and standardised process for PhD students in a department or institution.

In examining the educational processes of the PhD, this study has noted that many initiatives over the last two decades have attempted to develop a more homogenous set of processes for students, in part as a way to improve and ensure the overall quality of PhD education. Given the increase in the number of PhD students in recent years, and the perceived importance of the PhD in contributing to knowledge creation and economic growth, an emphasis on the quality of PhD education has developed and this has led to the introduction of educational processes that will at least provide minimal support to address the needs of all students. For example, the introduction of formal assessment during the course of the PhD, Skills Training Programme, and requiring students to attend courses and seminars have been relatively recent initiatives that involve all the students in a department or institution. The fact that students were not only encouraged, but to some extent were required to participate in these processes has underlined the attempt to make sure every PhD student experiences the same educational processes. Many of the requirements relating to these initiatives, such as the requirement to fulfil a certain numbers of hours of training or to be assessed in a general way, have shown that the initiatives have not been able to provide flexibility to address the individual needs of students. Importantly, the initiatives were also set up mainly to address the collective needs of students, but comments from students and supervisors indicated that the types of skills and capabilities encapsulated in the Skills Training Programme were mainly

generic. Moreover, the general format of assessing all students does not adequately address their individual needs.

The changing nature of PhD education, from a set of individualistic processes determined by the supervisor and student to a set of processes that are more homogenous for all students, has resulted in some tensions. As argued earlier, PhD education and its educational processes are predominantly individualistic. PhD students are expected to conduct individual research and produce a thesis that shows their individual contribution to knowledge. Therefore, the introduction of a series of common educational processes that attempts to cater for the collective needs of all students in a department or institution may not address the individual needs of students. Hence, some students may find that these educational processes may be useful to them, while others may feel them to be a waste of time. Supervisors may also have mixed responses depending on whether these department or institution-wide processes have met the needs of their students.

The mixed responses to the educational processes suggested there are tensions, especially when students are required to participate in activities which they may not feel useful and may even consider to be a waste of time. To some extent there are mismatches between the intended outcome of the initiatives to address the collective needs of students in a department or institution, and the expectations and actual translations of these initiatives into the educational processes of the PhD. Tensions also emerged when the expectations of students and supervisors about these educational processes were not met. Furthermore, as highlighted earlier, there is a lack of reciprocal feedback to these educational processes, and as such more tensions

and contradictions may emerge when the views of students and supervisors are not given due attention. Thus, the changing nature of PhD education and the struggle for the PhD to remain individualistic in contrast with the need to introduce processes to cater for the needs of a larger group of students have led to tensions in the educational processes of the PhD.

Chapter 8

Conclusion

PhD education has changed over the last two decades. There has been an exponential growth in the numbers of PhD students enrolled and PhD degrees awarded in the higher education systems of both developed and developing countries (Chapman and Chien, 2014; Cyranoski *et al.*, 2011; Maslen, 2013). Importantly, PhD education has also been associated with an economic role, with PhD graduates seen as advanced knowledge workers who contribute to national economies through their abilities to produce and use knowledge in a knowledge-based economy (Boud and Lee, 2009; Jorgensen, 2014; Nerad, 2006). This has been the justification for the investment of public monies into the development of human capital, specifically into PhD education. As the economic role has become more prominent, PhD education has been placed under intense scrutiny to ensure public resources invested in research and the training of PhD students are accountable. This scrutiny has therefore led to a focus on improving the quality of PhD education (Bogle, 2014; Boud and Lee, 2009).

However, as Becher (1993) argues, regardless of the development of PhD education either at the policy or the macro-level, the understanding of what happens on the ground and the day-to-day activities is important to provide a holistic overview of PhD education. Recognising the importance of micro-level practices, this research explores the educational processes of a PhD, utilising six case studies to gain an understanding of formal and informal activities and involving multiple actors across the institutional, departmental, interpersonal and individual levels. In addition, this research also seeks to elucidate forms of complexity underlying these educational processes.

This final chapter discusses the contributions and implications of this research for the understanding of PhD education and its educational processes. It also identifies the limitations of this current research and proposes future directions and ideas for advancement of research in the field of PhD education.

8.1. CONTRIBUTIONS OF THIS RESEARCH

This research makes two contributions to PhD education in terms of informing policy and practices, as well as a methodological contribution in terms of ways of exploring the PhD. Contributions that can help to inform policy and practice include, first, the identification of different forms of complexity, and second, a more in-depth understanding of the educational processes. Third, in terms of the methodological contribution, this research has demonstrated the advantages of using of a multi-level framework to examine these processes.

A Better Understanding of Complexity

PhD education is a complex social field. Lee and Boud (2009, p. 12) suggest that it consists of:

> … an interconnected array of different kinds of activities at different levels of abstraction, with often conflicting purposes and with varying expectations of outcome.

The differences in PhD education have also been attributed in the literature to the influences of cultures and norms of different disciplines, and different ways of developing the next generation of disciplinary scholars and researchers (Becher, 1993;

Delamont *et al.*, 2000; Parry, 2007). PhD programmes, even in the same discipline and the same higher education system, have also been shown to vary in terms of structure, length and organisation, and in terms of modes and models of learning (Ritchie, 2007). The stakeholders that take an interest in PhD education have also increased in recent years given the prominence of the economic importance of the PhD, and these stakeholders, such as policymakers and employers, have been claimed to have different purposes and expectations about the PhD as compared to actors such as academics and students (Lee and Boud, 2009; Flint, 2011; Keep, 2009).

As such, PhD education and its educational processes have become more complex. Consequently, this research has contributed to our understanding of PhD education and its educational processes by identifying three forms of complexity. The first relates to the fact that these educational processes are complex because they are individualistic, and they are influenced independently and collectively by the personal, social, educational and professional factors of not only the student but also the supervisor(s).

The second form of complexity identified demonstrated that the tensions and contradictions resulted from the interpretation and implementation of the educational processes by various actors across the institutional, departmental, interpersonal and individual levels. Hence, it is not merely the differences in the PhD programmes and disciplines which shaped these processes; importantly, it is the different interpretations of the ideas and rationale underlying the educational processes and activities, and how these processes and activities are implemented at the various levels by the actors, which resulted in tensions and contradictions among the actors.

The third form of complexity underlines the tensions emerging from the changing nature of PhD education, illustrated in this research as part of the consequences of a wider group of stakeholders who may have differing views and expectations within the existing practices understood by the actors. PhD education and its educational processes remain individualistic, but over the last two decades many initiatives have been implemented to provide some form of common educational processes for all PhD students, driven by concerns about disparity in terms of ensuring quality. Hence, there are tensions that emerged from this change in PhD education.

Identifying the forms of complexity as well as the tensions and contradictions resulting from them has implications for our understanding of the educational processes within the PhD. Tensions and contradictions reflect a degree of differences and mismatches in these processes, and therefore to gain a better understanding of the processes that have been designed to support PhD students, an illustration of these differences and mismatches is needed to understand PhD education. This knowledge, which is supported by empirical evidence, can help to inform policy and practice in terms of developing and improving these processes to be more effective and consistent and thereby enhancing the quality of PhD education. This understanding also has implications for enabling better translation of policy into practice, more specifically, the translation of initiatives and ideas into educational processes and activities.

More Insights into the Educational Processes

Besides identifying different forms of complexity, this research also contributes in building up the knowledge base about PhD education. As outlined by Leonard and

colleagues (2006), the literature surrounding PhD education has developed a strong focus on the supervisory relationship and the experiences of students. The focus on the supervisory relationship has underlined various aspects related to the supervisory relationship and supervision, such as the matching process (Acker, 2001), the factors that contribute towards a positive relationship (Acker, 2001; Deem and Brehony, 2000; Leonard, 1997), pedagogies, strategies and approaches in supervision (Aitchison *et al.*, 2012; Johnson *et al.*, 2000; Kamler and Thompson, 2006), and the roles of supervisors (Acker, 2001; Pearson, 1996; Raddon and Sung, 2009; Vilkinas, 2008). A significant proportion of the literature on PhD education has been devoted to the individual experiences of PhD students, led by the pioneering study of Becher (1993) where disciplinary cultures and norms as well as personal, social, and to some extent professional factors were identified in shaping the experiences of PhD students (Deem and Brehony, 2000; Delamont *et al.*, 2000; Parry, 2007; Parry *et al.*, 1997; Wright, 2003).

This research contributes to the literature of PhD education by providing a more in-depth understanding of the educational processes that support PhD students to become researchers by further illuminating the nuances of these processes.

First, this research argues that the most significant factor in explaining variation in educational processes is the individual factor. This argument reaffirmed Pearson's (2005) comment that disciplinary differences, as the most significant factor in explaining variation, may have been an assumption that was taken for granted. It is shown in this research that while there are common processes across the departments and disciplines, the main factors of influence of the educational processes are the

personal, social, educational and professional influences on the individual student and supervisor. This argument has implications for the policy and practice of PhD education. The assumption of disciplinary difference as the most significant factor played a significant part in shaping policy and practices in PhD education, including funding and programme development as well as activities in the educational processes.

However, with the importance of the individual factor being recognised as another significant influence, future policies that aim to improve the quality of PhD education and practices put in place to support PhD students should take into consideration the strong influence of individual factors. For instance, there may be a need to take into consideration the educational and professional background of supervisors in developing ways to help these academics to supervise PhD students more effectively. Helping them to recognise their own learning and training experience and needs, and then providing specific training and professional development programmes for supervisors, are important ways to better equip the supervisors to be more effective in supervising PhD students. Similarly, taking into account the educational and professional background of PhD students and providing greater flexibility for them to design their personalised educational processes may enhance their motivation and participation in the Skills Training Programmes. Improvements in the quality of PhD education may also take into account the influence of individuality by providing an incentive system that focuses on the individual supervisors and students.

Second, the findings of this research have also suggested the need to examine other factors influencing the educational processes of the PhD. The role of personality and

compatibility between supervisor and student has featured strongly as a significant influence on the educational processes. These findings have contributed further to our understanding of the supervisory relationship apart from what we already knew about the influence of power dynamics, gender and social composition, and age (Acker, 2001; Deem and Brehony, 2000; Leonard, 1997).

Furthermore, the changing supervisory relationship, which has been conceptualised as master-apprentice, employer-employee and consultant-client, has demonstrated the role of incentives underlying this relationship. This has added another new dimension in understanding the supervisory relationship – not only in terms of the changing relationship across time, but importantly in relation to the insights needed to incentivise supervisors and students in strengthening this relationship and the process of supervision in PhD education.

This research has also demonstrated the roles and interactions of students and supervisors with the community around them, which adds to our understanding of the development of students outside the supervisory relationship as well as through informal processes. Although this research did not set out to examine the multiple identities of students (Barnacle and Mewburn, 2010), learning through participation in student-led activities (Hopwood, 2010) or the social networks of PhD students (Pilbeam *et al.*, 2013), this research clearly illustrates the role of a community in supporting students. One such example is the departmental seminars in the Department of Economics of Keynes University, as well as the subtle and informal ways in which this department fostered a sense of community among students and supervisors. This research also illuminates the informal activities supervisors may use

to involve the academic community and industry to support the development of their students, particularly in regard to the development of employability and generic and transferable skills.

Although many studies have provided an understanding about the learning and developmental processes in the PhD, there are areas that remained unexamined. With six case studies in three disciplines across four HEIs, this research has contributed by adding to the existing knowledge base about PhD education. Every piece of new information and knowledge that is supported by empirical evidence is a vital contribution towards PhD education, particularly in understanding the educational processes. This additional knowledge may help to inform policy and practice and improve the effectiveness and consistency of developing PhD students to become researchers.

Multi-level Framework

Methodologically, through the use of a multi-level framework this research has been able to illustrate the tensions and contradictions that have emerged from the interpretation of ideas and ways of implementing them in educational processes. This can be considered to be a methodological contribution, since most existing studies have examined what happens in the PhD by focusing only on one level, such as the individual student experience, the supervision process or the role of peers (Leonard *et al.*, 2006; Pearson, 2005). Although this framework has been used to examine other aspects of PhD education, for instance attrition (McAlpine and Norton, 2006), the contribution of this study lies in the use of this framework to examine multiple

influences on educational processes across four different levels. Through this framework, notable tensions and contradictions across levels, such as the way in which external stakeholders, academics and students each have a differing understanding of employability, or the ways in which the idea of continuous assessment was understood and emphasised, leading to different processes and activities being carried out across departments, have been illustrated. Furthermore, through demarcating the institutional, departmental, interpersonal and individual levels, the framework has facilitated a more systematic way to explore these educational processes at each of the levels, as well as revealing inter-level interactions.

8.2. IMPLICATIONS OF THE CONTRIBUTIONS

This study has explored the complexity of the educational processes of a PhD based on six case studies in three disciplines across four HEIs, and made four contributions to research on PhD education. However, this study can also serve as a base on which further research on PhD education and its educational processes can be built. The six case studies were sampled from three disciplines – chemistry, economics and history – that have established boundaries, cultures and norms. Future research can be taken in a similar direction to examine, for example, PhD education and its educational processes in other disciplines, in other HEIs, with other supervisors and students, or even across higher education systems. It will also be interesting to explore PhD education in multi-disciplinary and trans-disciplinary settings, or at least in disciplines that until relatively recently have hinged on more than one discipline, such as computer science, psychology, biotechnology or material sciences. These disciplines

may have been influenced by more than one set of disciplinary norms and cultures, and across departments in different HEIs, the norms and cultures may further shape the educational processes to become more complex.

This study has also briefly introduced the initiative of the Doctoral Training School (DTC), which has become an increasingly common feature of PhD education in the UK. Although this study did not have the opportunity to sample PhD students in the DTC programme, based on the accounts of supervisors and departmental documents, this study has illustrated part of the influence of the DTC initiative in shaping educational processes. These influences include the role of and emphasis on coursework and formal training, and the concepts of consultant and client in a supervisory relationship. As a way to understand the development of PhD education more holistically, particularly the consistency and effectiveness of developing researchers through PhD education, the insights about educational processes initiated under the DTC and the complexity within these processes can be an important source of knowledge that helps to chart the future development of PhD education; this is a potential area for future research, all the more so as some of the academics who participated in this study suggested, based on their observations about policy and funding in PhD education, that the DTC in some ways represents the future model and direction in which PhD education in the UK is likely to be heading. In addition, as courses and structured PhD programmes have become more popular, this has provided an opportunity to examine the formal curriculum of courses and training. Given that PhD education traditionally did not have formal courses and training, this new development extends the scope for future research in PhD education.

While this study is guided by a multi-level conceptual framework to gain insights into the educational processes and their underlying complexity across multiple levels, there remain areas in these educational processes which have not been given adequate focus and emphasis in this study. Notably, two other areas that may contribute to the understanding of different forms of complexity, particularly in the supervisory relationship, are gender and domicile status of supervisors and students. Through a more structured sampling framework, future research may examine the complexity that is shaped by, for example, the interaction between an international supervisor and a local student, an international supervisor and an international student of another culture, a local supervisor and an international student, or a local supervisor and a local student. Likewise, the gender pairing of student and supervisor(s) is also a potential aspect that results in complexity in the educational processes in the PhD. These different combinations in a supervisory relationship, compounded by the increasing popularity of having supervisory teams and increasing numbers of foreign students and supervisors, may enable a more robust conclusion to be drawn that helps us to advance our understanding about the educational processes of a PhD, particularly in terms of the supervisory relationship.

Although this study has only focused on PhD education across six case studies in England, the findings and conclusion have wider implications. The British model of PhD education is not only used in this country, as the legacy and influence of British higher education has extended to many Commonwealth, developing and less developing countries, so that the ways in which PhD education was carried out in these countries also took after the British model that focused predominantly on a supervisory relationship between a student and a supervisor. Therefore, the insights of this study,

specifically the complexity in the educational processes, can also be a source of knowledge for other higher education systems to understand their own PhD programmes and chart the way forward. Furthermore, given the fact that the development of PhD education globally has shown signs of convergence between the British/European and US/North American models, the elucidation of complexity and insights about the educational processes in these six case studies can also provide the basis for future comparative studies about the PhD, specifically in terms of the processes across different systems, structures and approaches, developing students into the next generation of researchers through PhD education.

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Appendix A

Ethical Approval

SOCIAL SCIENCES & HUMANITIES
INTER-DIVISIONAL RESEARCH ETHICS COMMITTEE

Hayes House, 75 George Street, Oxford. OX1 2BQ
Tel: +44(0)1865 614871 Fax: +44(0)1865 614855
ethics@socsci.ox.ac.uk www.socsci.ox.ac.uk

Co-ordinator of the IDREC
Social Sciences Divisional Office

UNIVERSITY OF OXFORD

Ref. SSD/2/3/IDREC

02 July 2010

Mr Chang Da Wan
Department of Education
15 Norham Gardens

Dear Mr Chang Da Wan,

Application Approval

Ref No.: SSD/CUREC1/10-416

Title: The Learning Outcomes of Doctoral Education: Organisational and Individual Perspectives

The above application has been considered on behalf of the Social Sciences and Humanities Inter-divisional Research Ethics Committee (IDREC) in accordance with the procedures laid down by the University for ethical approval of all research involving human participants.

I am pleased to inform you that, on the basis of the information provided to the IDREC, the proposed research has been judged as meeting appropriate ethical standards, and accordingly approval has been granted.

Should there be any subsequent changes to the project, which raise ethical issues not covered in the original application, you should submit details to the IDREC for consideration.

Yours sincerely,

Chris. Ballinger

Dr Chris. Ballinger

cc. Dr. Geoff Hayward, Department of Education, 15 Norham Gardens
Professor Ingrid Lunt, Department of Education, 15 Norham Gardens

HBP / CAJB

Appendix B

Information Sheet for Participants

UNIVERSITY OF OXFORD
DEPARTMENT OF EDUCATION

15 Norham Gardens, Oxford OX2 6PY
Tel: +44(0)1865 274024 Fax: +44(0)1865 274027
general.enquiries@education.ox.ac.uk www.education.ox.ac.uk

Director Professor Anne Edwards

Participant Information Sheet
The Changing Nature of Doctoral Education

It gives me great pleasure to invite you to participate in this research project. Before you decide to participate, it is important to understand what your participation will entail and why this study is being conducted. Please read the following information and do not hesitate to ask about any aspects of the study that might be ambiguous or if you desire more information about this study.

Purpose: This study is to determine the roles and purposes as well as understand the nature of the outcomes of doctoral education appropriate for meeting the demands of an evolving higher education system and a knowledge-driven economy and society.

Methodology: I will be conducting semi-structured interviews to understand how these outcomes are expressed in doctoral programmes and how individuals perceive the roles and purposes of doctoral education through these outcomes. I would like to invite you to be one of the participants in the interview, which is scheduled to be 30 minutes. The interview will be audio-recorded and transcribed.

Participation: Your participation is voluntary and you have the right to withdraw your consent and discontinue your participation in this study at any time. You also have the right to refuse to answer any questions posed during the interview. After the interview, if you wish to obtain a copy of the interview transcript, please feel free to let me know. If you agree to take part in this study, you will be asked to sign a written consent form. There will be no financial compensation for your participation in this study.

Results: The results of this study will constitute the basis of a University of Oxford doctoral thesis. Some results may be published in journals, conference papers and/or books. The duration of this research study will vary between two and three years, after which, the results of the study will become publicly available. If you wish to obtain a copy of the published results, please inform me.

Privacy: Your privacy will be maintained throughout the research and in all written and published data that will result from this study. A pseudonym will be used for the purposes of quoting from interview transcripts to illustrate the research findings. All data will be treated with complete confidentiality and will be kept on a secure password-protected computer, in accordance with the United Kingdom Data Protection Act of 1998.

Researcher's Contact Details:
Chang Da Wan, Doctoral Candidate
changda.wan@education.ox.ac.uk; Mobile: +44 (0)7551942425

Other Contacts:
Dr. Geoff Hayward, Director of Research & Supervisor, geoff.hayward@education.ox.ac.uk
Professor Ingrid Lunt, Director of Graduate Studies & Supervisor, ingrid.lunt@education.ox.ac.uk
Dr. Lars-Erik Malmberg, IDREC Chair, lars-erik.malmberg@education.ox.ac.uk,

This project has been reviewed by, and received ethics clearance through, the University of Oxford Central University Research Ethics Committee

Thank you for taking the time to read this information sheet

Appendix C

Participants' Consent Form

UNIVERSITY OF OXFORD
DEPARTMENT OF EDUCATION

15 Norham Gardens, Oxford OX2 6PY
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general.enquiries@education.ox.ac.uk www.education.ox.ac.uk

Director Professor Anne Edwards

Research Consent Form

The Changing Nature of Doctoral Education

This research is being undertaken by Chang Da Wan, a doctoral research student from the Department of Education and the ESRC Centre on Skills, Knowledge and Organisational Performance (SKOPE) at the University of Oxford.

I have read and understood the information on this study and have had the opportunity to ask questions and get satisfactory answers about this study.

I understand that I can withdraw from the study without any consequences at anytime simply by informing the researcher of my decision.

I understand that only the researcher will have access to identifying information provided and what will happen to the data at the end of this project.

I understand that this project has been reviewed by, and received ethics clearance through, the University of Oxford Central University Research Ethics Committee.

I agree to participate in this study.

Participant's signature: _____ Date: _____

Participant's name: _____

Participant's email: _____

Participant's contact number: _____

Researcher's signature: _____ Date: _____

Researcher's name: Chang Da Wan

Appendix D

Interview Schedule

PHD PROGRAMME DIRECTOR

Thank you for your participation and time. Do you have any questions before we begin? General conversation about their background – career, academic, supervision, administration	**PLEASANTRIES**
What do you see as the main purpose of the PhD today? How has the doctorate (or doctoral programme) changed from the time you did your doctorate?	**PURPOSES**
As a coordinator/director, what do you hope your doctoral students will gain from the doctoral programme? What sort of abilities do you hope they will develop? Anything in particular about helping them to gain employment in the future?	**CONTENT** [Knowledge, skills and capabilities mentioned will be noted on prompt cards]
Can you describe the process of how these content/outcomes are determined in your department? Who decides the content/outcomes? Any periodical review? How are these communicated to supervisors and students? (If a top down approach) How are the different opinions of supervisors and students taken into account? (If a bottom up approach) What approach do the department use to help the students to develop this [knowledge/skills/capabilities]? How are students helped to achieve this [knowledge/skills/capabilities]? In your capacity as a supervisor, do you have a particular approach to supervise your PhD students? In your capacity as a supervisor, what approach do you use to supervise/guide your students in helping them to develop this [knowledge/skills/capabilities]? Can you describe the assessment process in your department? Is this [knowledge/skills/capabilities] assessed in any way? Is there a reason why there isn't a formal assessment? (If there isn't)	**PROCESSES**
Finally, are there other issues that you think are important for understanding the purposes, outcomes and processes of the PhD? Anything else you would like to share? How would you describe a good/ideal PhD student? Thank you for your time and attention.	**CONCLUDING REMARKS**

SUPERVISOR

Thank you for your participation and time. Do you have any questions before we begin? General conversation about their background – career, academic, supervision	**PLEASANTRIES**
What do you see as the main purpose of doctoral study today? How has the doctorate (or doctoral programme) changed from the time you did your doctorate?	**PURPOSES**
As a supervisor, what do you hope your doctoral students will gain from the doctoral programme? What sorts of abilities do you hope they will develop? Anything in particular about helping them to gain employment in the future? Anything else beyond the thesis?	**CONTENT** [Knowledge, skills and capabilities mentioned will be noted on prompt cards]
Do you have a particular approach to supervise your PhD students? What approach do you use to supervise your students in helping them to develop/learn this [knowledge/skills/capabilities]? How are doctoral students helped to achieve/learn [knowledge/skills/capabilities]? What approach do the department use to help the students meet/learn [knowledge/skills/capabilities]? Can you describe the assessment process? Is this [knowledge/skills/capabilities] assessed in any way? Is there a reason why there isn't a formal assessment? (If there isn't)	**PROCESSES**
Finally, are there other issues that you think are important for understanding the purposes, outcomes and processes of the PhD? Anything else you would like to share? How would you describe a good/ideal PhD student? Thank you for your time and attention.	**CONCLUDING REMARKS**

PHD STUDENT

Thank you for your participation and time. Do you have any questions before we begin? General conversation about their background – academic, work	**PLEASANTRIES**
Why are you doing a doctorate? What do you hope to gain through the doctoral programme? What does the PhD means to you? Anything else beyond the qualification/research/thesis? What is the ideal career/job that you intend to pursue after the PhD?	**PURPOSES**
Imagine you were being interviewed for your dream job. You are asked what you have gained from your doctoral programme that would be useful in the job you have applied for. What would you say? Will your answer be different if this is a non-academic/academic job that you are applying to? Anything else besides completing the research training? What are the abilities you have developed?	**CONTENT** [Knowledge, skills and capabilities mentioned will be noted on prompt cards]
Is there a particular approach your supervisor takes to supervise? How are you helped to develop/learn this [knowledge/skills/capabilities]? What approach does your supervisor takes to help you develop/learn [knowledge/skills/capabilities]? What role does the department/university plays to help you meet/learn [knowledge/skills/capabilities]? Can you describe the assessment process? Is this [knowledge/skills/capabilities] assessed in any way? Other formal/informal assessments?	**PROCESSES**
Finally, are there other issues that you think are important for understanding the purposes, outcomes and processes of the PhD? Anything lacking from your PhD training that might perhaps be useful for the job/career you aspired? Anything else you would like to share? How would you describe a good/ideal PhD student? Thank you for your time and attention.	**CONCLUDING REMARKS**

Appendix E

Participants' Profiles

ACADEMICS D=PhD Programme Director; S=Supervisor

Pseudonym	Institution	Discipline	Nationality	Educational Background	Gender
D1	Keynes University	Economics	German	PhD (United States)	Male
D2	Hodgkin University	Chemistry	Australian	PhD (Australia)	Female
D3	Taylor University	History	German	PhD (Taylor University)	Male
D4	Smith University	History	British	PhD (England)	Male
D5	Taylor University	Chemistry	British	PhD (England)	Female
D6	Hodgkin University	Chemistry	South African	PhD (South Africa)	Female
S1	Hodgkin University	Chemistry	British	PhD (England)	Male
S2	Hodgkin University	Chemistry	British	PhD (Hodgkin University)	Male
S3	Taylor University	History	British	MA (England)	Female
S4	Keynes University	Economics	Italian	PhD (United States)	Male
S5	Taylor University	History	Italian	PhD (Taylor University)	Female
S6	Taylor University	History	British	PhD (England)	Male
S7	Keynes University	Economics	Malaysian	PhD (United States)	Male
S8	Hodgkin University	Chemistry	British	PhD (Hodgkin University)	Female
S9	Taylor University	Chemistry	British	PhD (England)	Female
S10	Taylor University	Chemistry	British	PhD (Northern Ireland)	Male
S11	Taylor University	Chemistry	British	PhD (England)	Male
S12	Keynes University	Economics	Spanish	PhD (Keynes University)	Female
S13	Smith University	History	British	PhD (England)	Male
S14	Smith University	Economics	British	PhD (England)	Male
S15	Smith University	Economics	Italian	PhD (England)	Female
S16	Smith University	History	British	PhD (England)	Female
S17	Smith University	Economics	Kazakh	PhD (Kazakhstan)	Female
S18	Smith University	History	British	PhD (Smith University)	Male

PHD STUDENTS St=PhD Student

Pseudonym	Institution	Discipline	Nationality	Educational Background	Gender
St1	Keynes University	Economics	Turkish	Master's (Turkey)	Female
St2	Taylor University	History	British	Master's (Taylor University)	Female
St3	Keynes University	Economics	Chinese	Master's (Keynes University)	Male
St4	Taylor University	History	British	Master's (England)	Female
St5	Taylor University	History	British	Master's (Taylor University)	Female
St6	Hodgkin University	Chemistry	British	Bachelor's (Hodgkin University)	Male
St7	Hodgkin University	Chemistry	French	Bachelor's (France)	Female
St8	Hodgkin University	Chemistry	British	Bachelor's (England)	Male
St9	Hodgkin University	Chemistry	British	*Bachelor's (Hodgkin University)	Female
St10	Taylor University	History	British	Master's (Taylor University)	Male
St11	Taylor University	Chemistry	Czech	*Bachelor's (Czech Republic)	Male
St12	Keynes University	Economics	Portuguese	Master's (France)	Female
St13	Keynes University	Economics	French	Bachelor's (France)	Male
St14	Keynes University	Economics	American	Bachelor's (United States)	Female
St15	Taylor University	Chemistry	British	Master's (Scotland)	Male
St16	Taylor University	Chemistry	British	*Bachelor's (Taylor University)	Male
St17	Taylor University	Chemistry	British	*Bachelor's (England)	Female
St18	Smith University	History	British	Master's (Smith University)	Male
St19	Smith University	History	British	Master's (England)	Male
St20	Smith University	Economics	Sri Lankan	Master's (The Netherlands)	Female
St21	Smith University	Economics	Chinese	Master's (Smith University)	Female
St22	Smith University	History	British	Master's (England)	Male
St23	Smith University	Economics	Chinese	Master's (England)	Female

* It is a four-year (or five year) undergraduate programme where the student graduates with a Master's degree instead of a Bachelor's

Appendix F

List of Documents and Websites

For explanation about documents and websites, kindly refer to Section 3.6 (p. 107).

Documents and websites have been renamed partially to ensure anonymity.

** Department-specific Documents*

HODGKIN UNIVERSITY

***DocH1** Postgraduate Handbook 2010-2011, Department of Chemistry

***DocH2** Doctoral Training Centre Handbook 2010-2011

***DocH3** Doctoral Training Centre, MRes Project Proposal Notes

DocH4 Regulation 16 – Hodgkin University Regulations for Students 2010/11

TAYLOR UNIVERSITY

***DocT1** Handbook for Research Students 2010-2011, Department of History

DocT2 The Art of Research, Graduate School Handbook 2010/11, Graduate School

***DocT3** Department of Chemistry Website

***DocT4** Department of History Website

DocT5 Academic Regulations and Guidelines for Research Degree Students 2009/2010

KEYNES UNIVERSITY

DocK1 Keynes University Website

Doc K2 Keynes University Website for Research Students

***DocK3** Department of Economics Website

***DocK4** Handbook for MRes/PhD Students

***DocK5** Courses Content for Research Students

SMITH UNIVERSITY

***DocS1** Handbook for Research Students 2010/2011: University Information (Part A)

***DocS2** Handbook for MRes/MPhil/PhD Students 2009-2010, Faculty of Social Sciences

***DocS3** Handbook for MPhil/PhD Research Students 2009-2010, Faculty of Arts and Humanities

DocS4 Code of Practice for Research Students

***DocS5** Graduate School for the Social Sciences Website

***DocS6** Graduate School in Arts and Humanities Website

DocS7 Skills Opportunities at Smith University Website

DocS8 Personal Development Planning and Learning Needs Analysis (PDP/LNA) Website

DocS9 Learning Needs Analysis Form

***DocS10** School of Economics Website

***DocS11** Department of History Website

DocS12 Rules for the Submission of Theses for Higher Degrees (PhD, MPhil, LLM)

DocS13 Guide for Examiners for Higher Degrees by Research (PhD, MPhil, LLM)

Appendix G

Samples of Coded Interview Transcripts

Samples of coded interview transcripts were taken from the following participants:

Participant	Department & HEI	Designation	Page
D2	Department of Chemistry, Hodgkin University	PhD Programme Director	340-346
S7	Department of Economics, Keynes University	Supervisor	347-353
St10	Department of History, Taylor University	Student	354-359
St19	Department of History, Smith University	Student	360-366

Note of explanation:

- The texts in normal font refer to the participants
- The texts in bold refer to the interviewer
- The texts in between two brackets, for example {purpose>academia} and {/purpose>academia}, refer to the coded data bits.
- Part of blackened to ensure anonymity

[START]

Once again, thank you for your time to allow us to go into this conversation about what the doctorate is in the current context, that is basically what my research interest is. Before we begin do you have any questions, anything not clear you want to clarify?

No

Can you just share about your background, your academic background, career as well as your supervision background?

Ok. I did my undergraduate at the [redacted] in Australia. My post-graduate is at the [redacted]. And then I post doc for 2 years at the [redacted] in the Physics Department. And then I came Hodgkin as a post-doc but that only lasted for one year until I got a role with the Royal Society research fellowship for four years and then became a member of staff. So my first formal PhD student supervision started in 2004 when I became a member of staff.

Have they completed?

Yes

So they graduated?

Three students graduated. And I got six of them now.

All six, plus the previous three they are all in the traditional PhD programme?

Yes.

And what about your administrative experience?

So, I have been doing the Director of Studies job now for four years, this is the start of the fifth year. Prior to that, I have other small jobs around the Department but I have been the Director of Studies.

And what do you see as the main purpose of the Doctorate?

The main purpose{outcome>research} I think is to get training in how to do research, further training in how to do research{/outcome>research}. {outcome>methodological}And hopefully that will equip the student to go out and apply the methodology even if they don't stay in the particular topic area{/outcome>methodological}, obviously {outcome>disciplinary}they gain a lot of knowledge about the particular topic but I think that is sort of secondary aim{/outcome>disciplinary}. But really it is to show them {outcome>research}how to do things systematically{/outcome>research}, {outcome>research}how to avoid plagiarism{/outcome>research}, {outcome>research}how to work out what else is going on in a literature{/outcome>research}, {outcome>research}how to work out what is interesting{/outcome>research} and {outcome>research}how to be systematic and logical and analyse data and to write papers and reporting that{/outcome>research}.

Is that very different from your own experience in Australia when you were doing your PhD?

No, I think that's fairly similar. {change>content}What has changed is the amount of emphasis on the generic skills training that they get, so the emphasis here at Hodgkin is fairly important aspects that they do some generic skills training{/change>content} although some supervisors don't agree and the. It's one of the big problems as a {role>director}Director of Studies is to encourage students to take up generic skills training as opposed to things that are directly related to their PhD research{/role>director}.

Could you elaborate more about what sort of generic skills training?
Well, {outcome>skills>communication}the generic skills that we aim to get them to do within the Department involve things like communication{/outcome>skills>communication}, and {outcome>teaching}we let them do a bit of laboratory teaching{/outcome>teaching}, so {outcome>teaching}{outcome>skills>communication}the ability to pass on one's ideas to others at a variety of different levels, so, from being able to communicate some of their big ideas to their peers in talks or to other finders at conferences or to undergraduate students{/outcome>skills>communication}{/outcome>teaching}. {outcome>skills>writing}We also encourage their writing skills, we run things on scientific writing {/outcome>skills>writing}and {outcome>skills>networking}they are encouraged to go to conferences and to build up academic networks{/outcome>skills>networking}. {outcome>skills>external}Within the university then there is a lot broader generic skills training if the student wish to take it in things like entrepreneurship, there is advise on how to present themselves for job interviews, there's career guidance, what else is there, there's things about how to study and also training forces in more generic methods so for instance uses of IT equipments which is not directly related to what they do in their research but it is a useful skill to have when looking for employment.{/outcome>skills>external}
Is there any particular set of abilities that the PhD programme aims to develop in the students?
{outcome>research}{outcome>general}I believe that's the statement on the university website which said something about having a well-round and balance set of skills, but from the academic viewpoint I think it's a training in research.{/outcome>general}{/outcome>research}
Research? Any more or sort of tangible examples of how this is actually implemented in the Department.
Training and research?
In terms of, what sort of the overall holistic training that the statement that the university puts forward, how is it actually carried out in chemistry specifically?
Well, I mean I've already mentioned some of the generic skills training. {outcome>skills>safetyhealth}We also do a lot of safety training so that the students have an appreciation of health and safety requirements because chemistry obviously is a practical subject.{/outcome>skills>safetyhealth} {outcome>skills>safetyhealth}{outcome>employability}In the general chemistry degree they are required to do things like fire safety training and gasoline handling, to make sure these things are done in a reasonable manner. And there's a lot of follow up on safety issues, so for every experiment, they need to complete, safety forms before they start to show that they consider the issues, and that kind of thing I think is important training when they go up to chemical industry afterwards, to go to those places, they have much more formalised things.{/outcome>employability}{/outcome>skills>safetyhealth} For the training and research, {outcome>methodological}we run courses on how to use various pieces of equipment that students will take if they need to use that piece of equipment. For instance, there's courses on the x-ray crystallography, courses on NMR, courses on mass spec (spectrometry). There's also training courses in the

university for things like SEM & TEM, so they need particular skills on particular instrumentation and that is available.{/outcome>methodological} {outcome>disciplinary}We also encourage them to take final year or Masters level taught units if those are relevant to particular areas of Chemistry{/outcome>disciplinary} but none of this is compulsory, it's to do with what the supervisor recommends for the particular student. {programme>individualistic}So the student comes in and the supervisor feels that particular deficient in some areas then it may be that they attend quite a few lectures during their first year, but that's not very common.{/programme>individualistic}

And is there anything particular in helping them beside the job interviews and in terms of enhancing the employability?

Well, {outcome>skills>external}there's career service at the University which then there's a specific person who is in charge of graduates and post-graduate career's advice. Yes, there are workshops and I think they will set up mock interviews..{/outcome>skills>external}

But they are not in the Department?

They are not in the Department no, because all of that have been centralised. It was specifically taken away from the Department and moved to the centre.

So including for PhDs?

Yes.{outcome>skills>external} I mean, there's a Robert's money for training but a large proportion of that Robert's money is taken to the centre and we are encouraged to point students at the centre because it's felt that it's done more efficient through the centre than through the Department.{/outcome>skills>external}

So all the Robert's money is actually centralised in the university?

Not all of it, but most of it.

The majority of it?

Yes.

Is there a process of how the different expectation of outcomes is actually formulated in the Department?

Which outcomes?

For example, the expectation of what the student is supposed to learn at a PhD programme?

{assessment>transfer}I think that, part of that is formalized in the transfer to PhD, so all of our students start off as an MPhil and have to do a viva and a report at the end of the first year. So, as well as {programme>individualistic}inputs from their supervisors, which depends very much on each supervisor's supervision style,{/programme>individualistic} I think, then the student is examined by two people within the Department but outside their research group at the end of year one and this used to give a, like setting a level, I guess, of what is expected of a PhD student after the first year.{/assessment>transfer} Most students don't have a problem with this but those who do fail and there are some each year, are given a list of what is required, what expectation they haven't met and they get a second chance within the next six months, depending on, the length of time it takes, depends on how far below the expected level they are, so...

Are these expectations being explicitly written to inform the student?

Well, {programme>individualistic}it depends very much on what their research is and what their expectations are in terms of what specifically they have to learn.{/programme>individualistic} I mean, {outcome>expression}they're told at the beginning that they're expected to have a good background knowledge of the areas relevant to their work that they done in the first year. They're supposed to be able to explain what their project is and why they are doing it and to have an appreciation of the techniques that they're using, so they should, these things are written down in the post-graduate handbook that are given to them, but {programme>individualistic}of course the absolute detail specific about whether they need to know NMR or if they need to know "x-ray scattering, depends on which one they're using{/programme>individualistic}.{/outcome>expression}

{programme>individualistic}So it's up to the supervisor to decide what sort of precise ability and skills that the student needs?

Yes, and to do with their project. Because it is no point to learn NMR if they are never going to use it.{/programme>individualistic}

As the person in charge of the overall PhD programme in the Department, how do you actually take into consideration the different kind of expectations should supervisors have on their students at an institutional level. How do you actually coordinate the different expectations of supervisors?

Well, {outcome>negotiatingdifferences}the supervisors all have, should have from this transfer programmes, the idea of what level a student is expected to be at,{/outcome>negotiatingdifferences} and new supervisors always co-supervises for the first three years. So any students they have will be co-supervise by senior academics.

So the co-supervision is actually sort of training process for future supervisors?

And they also have to complete PGCAP, Post-Graduate Certificate in Academic Professional Practice, part of which have a module on academic supervision. So that there they get a little bit of theory about management of things as well, but I'm not, as Director of Studies, I'm not directly involved in that. I just happen to be involved in that particular module of that particular thing

Who conduct the training?

That is done by the central. It is a requirement for probation for any new lecturers.

By the university?

By the university.

In terms of the assessment of students, you did mention about having the first year MPhil exams at the end, is there any other sort of assessments that the students have?

Yes. {assessment>skills>presentation}During the first year, first year students, towards the end of the first year, they present a poster, we have a final year post-graduate symposium, so the final years have to give a talk, first years have to give a poster, and the poster is marked for, assessed, it's not really marked, there are some pro-forma that we use, a couple member of staff go around all of the posters and write comments about the content and the presentation, and then there are prizes given for the best poster across organic, inorganic and physical/computational, to provide a bit of incentive for the student. So that happens towards May in the first year{/assessment>skills>presentation}, and then they have their first year report and the viva, which is the only thing the university

requires of them, in terms of progression. But {assessment>skills>writing}{assessment>transfer}they get feedback both from, hopefully from their supervisor when they are writing their report{/assessment>skills>writing} and then from the examiner about the content and the presentation of the report.{/assessment>transfer} {assessment>skills>presentation}Then, in the second year they have to give a short fifteen minutes talk during a lunch time session to an audience mainly of other students. That's not specifically marked but {role>peers}they get a lot of useful feedbacks because it is an audience of other students. The students actually in practice talk amongst themselves and give a lot of good advice{/role>peers}.{/assessment>skills>presentation} {assessment>skills>presentation}And then final year, in the third year, the traditional final year, they give a fifteen to twenty minutes talk to the whole Department and again, the staff members, every staff member who attends have a pro-forma and with the criteria and they write comments and those comments are feedback to the students and again there are prizes for the best presentation in organic, inorganic and physical. And we do require that those things are actually done at some point during the PhD so if they miss it, for instance, if a person is away at a conference during the final year symposium and they will have to give a talk on some other points, so within the Department, we require those.{/assessment>skills>presentation}

So you are the one who actually coordinate the symposium?

Yes.

What sort of criteria do you actually judge the participants?

The clarity of the overhead (?), or I can give you a copy of the pro-forma if you want. The clarity of the overhead (?), the clarity of the verbal expression, the quality of the science, and some of the other things.

Is that more towards the development of generic skills?

Well, {assessment>researchquality}they have to, the thing is also mapped in their research quality. So there's comments about, comments made about their work as well. And in all cases, we, I mean the final year talks, we had everybody, every staff member who is present have a chance to comment, so you have everything from people who know nothing about the field, people who are expert in the field, feeding back comments and comments are anonymous about the students so that they can you know... Some of them are quite harsh, that equally others are quite helpful.{/assessment>researchquality}

Coming back to the generic skills you mentioned just now, how are these expectations of what students are supposed to do, suppose to learn the generic skills, how are they expressed to students?

{outcome>expression}The students, during induction week, I have an hour where I go through the expectation and that includes the expectation of generic skills. {/outcome>expression}{assessment>skills>overall}So they are supposed to be required to do eighty hours a year. Yes, ten days, of generic skills training. And I have a pro-forma that after their first year they are supposed to be able to tick some boxes and say what generic skills they have done, which gets handed into the examiners when they do their transfer. We don't police that in second year and third year, but we try and make them set a good start in the first year. And we

include in that eighty hours things like attending seminars up to a particular hour, the preparation for the first year poster requires some generic skills training time, attending the talks given by the second years, and then also what other training and courses they did, there is space for them to fill that out to add in, also the time demonstrating to other undergraduates {/assessment>skills>overall}
So in other words, students are being assessed by the number of hours?
Yes
By how many lectures they actually attended seminars they attend. Is there any kind of formative assessment?
{assessment>skills>overall}We don't mark or anything like that. I don't think the point of generic skills training is to mark things. It is to enable them to develop useful abilities for themselves so I can't see ups in imposing anything by having a marking scheme can assist in that process.{/assessment>skills>overall}
But is there a way of how the department actually assess how the students have actually learn or pick up the skills?
No, we don't have any way. Apart from the thing we give feedback, we hope to see that they are improving from Year 1 to Year 2 to Year 3 but-
So it is implicitly through their work, like posters and things like that?
Yeah
So there isn't a sort of formal assessment in terms of the generic skills training?
No. {assessment>skills>overall}I think that would be counter-productive. Because I think the generic skills are the thing students want to learn or want to need to learn. If you just tell them that they have to learn it, then I don't really see that they are going to benefit greatly. Generic skills are the soft things that they going to need to take on to other jobs. And if they really don't want to go to communication course then they'll sit at the back and fold their arms and not do anything so I can't see any point in assessing that type of things.{/assessment>skills>overall}
Have you encountered any specific problems in terms of implementing generic skills training? You mentioned resistance from some supervisors?
{problem>skills}For some supervisors, they feel it is taking time away from the bench. But given that our funding is now contingent upon doing the generic skills training, they basically have to allow their students to do skills training. If the student hasn't done much generic skills training, then I would have a word with the supervisor and with the student to see whether is it a problem with the supervisor. I know which supervisors are likely to be problematic. And to be fair, they are getting better. And if students really express their strong desire to generic skills training, they usually don't let their supervisor stop them.{/problem>skills}
But in terms of the response from the students, are they overwhelming?
No, {problem>skills}I would say that most students participate in the university's central generic skills programme, to some extent, but probably not as much as they ought to. The stuff that we run within the department is very highly rated by the students and they do go, which I think is because we don't run a lot of things. The students see that the things that we do run are the things we feel are worth it. We normally have to either turn people away or run second courses later on the year because there are too many people wanting to do it for the number of places that we do have.{/problem>skills} {problem>skills}But I don't know that we are able to continue to do much of that because the Robert's money stops in April [2010]. So

for instance, I'm not planning on running our own scientific writing courses here because we can't afford to find a trainer. {/problem>skills}
So it is an external trainer?
It is an external trainer and she is excellent but the DTC students will probably have her comes in because DTC have money for that kind of thing, but our students won't benefit from it.
Roughly how many students are currently in the department who are doing the traditional PhD?
Around about 100
Ranging from Year 1 to Year 3?
To Year 4. Because we have a lot of students now on three and a half year or four year funding.
3 years is too little?
The university's funding is still 3 years. So we do have a few on 3 years but the EPSRC and DTC are three and a half. And there are now grants where they specify a 4 year PhD programmes. The 4 year is the least common. The 3½ year is probably most common now but there is still probably 40% of them on 3 years
Is there anything else you want to share about the PhD programme? Especially about the generic skills? The provisions and the assessment?
Not really. {outcome>skills>external}{problem>skills}I mean most of the generic skills training are out of my hands. It has all been taken centrally. And they discourage us from running stuff within the department.
{/problem>skills}{/outcome>skills>external}
Besides the scientific writing, are the other sort of generic skills training within the department run internally or externally?
Some of it is run internally because {implementation>teaching}we have a teaching fellow who is also very interested in postgraduate training. So she does training before students become demonstrators. So we require them to do a course on how to teach or to relate to undergraduates before they do and that's done in-house.{/implementation>teaching} {implementation>skills>writing}We also had taken advantage of things like, the university has literary fellow and science writer, but he is employed by the university for 2 or 3 days a week. He has come in and given courses on plagiarism and scientific writing and things like that.
{/implementation>skills>writing}So that, I guess, is within the university but not really in the department. Well, {implementation>skills>safetyheatlh}the training courses on, the initial safety training is done by a technical manager but we have people coming in for the fire safety training and the gasoline handling.{/implementation>skills>safetyheatlh} {implementation>skills>it}There's also people from the library who run courses on databases and access and some IT matters. But they come specifically to the department
{/implementation>skills>it}and not within the department. And the courses training on the actually equipment is done within the department.
Anything else that you think is important? Not a bit.
Yeah that's pretty much. Thanks. Thank you.
[END]

[START]
Thank you very much for your time
Hey you are welcome
Do you have any question before we begin?
No. Do you need me to identify myself for your tape?
No. It's alright. Can you just share a bit about your background?
Ok. I was born in Malaysia and I left Malaysia to go to the university of the United States. And then I stayed on in the United States for my bachelor and then my PhD degree. And then I work in the United States for 5 years before I came to the UK. So I've been in the UK since 1991 at this institution.
Throughout the 5 years in the States as well as your time in the UK, are you all the while in the academia?
Yes, I've only ever been a University Teacher in economics.
What about your supervision experience, in terms of supervising students?
I have supervised students at all different levels; from bachelors degree, undergraduates who are working on research papers, to masters degree supervision, and then PhDs as well.
What do you see is the main purpose of the PhD programme?
{purpose>academia}{purpose>disciplinary}Someone once joked to me that the only difference between the PhD and the Masters degree was that when you do a PhD, you learn how to do footnotes. And you know, although it's obviously a joke but the thrust of that comment from someone that I highly respect and I considered very wise, the thrust of that comment is that, most of the things that you've learned, most of the tools, the techniques you have learned after your masters degree. {outcome>fieldgeneralknowledge}And for the PhD what you do is you hone the scales that make your work presentable to other academics. Now, I think that's a rather extreme view. I think the person who told me that, said that somewhat jokingly but because he did considered that an extreme view. But there's element of truth in there. A lot being a successful PhD, yes there's additional research, there's the originality, there's the writing, there's the forming your own views but there's also getting people to be presentable to other academics, learning the kind of social skills and soft skills that is in academics. {/outcome>fieldgeneralknowledge}Now, it's a very expensive way to learn those skills because you know, most people outside academia consider doing a PhD in full time devoted to research. I take away from that particular conversation, the idea that PhD training teaches someone to be rounded in many different dimensions. More in the dimension of being able to get along with other academics. I think most pronounced in that direction because it's really nothing else that teaches people how to do that. You can learn to be responsible members of the society from civic lessons from just reading newspapers, from hearing political debate and discussion. But there's nothing else that teaches someone to be an academic except the training while being an academic.{/purpose>disciplinary}{/purpose>academia}
{purpose>disciplinary}So in other words, academic seems to be the priority and focus of the PhD programme?
Yeah, I think so. Certainly for my field of economics, it might be different in other areas, in more applied areas I suppose, let's see what would an example be, applied areas that have greater engagement, more direct engagement with the society around them. I suppose certain kind of social policies, PhD in Social Policy, PhD in Healthcare

would be instances where the engagement with political actions, with actual policy is much greater and more immediate and more pressing. In areas like economics or like mathematics or physics, there's much more of a need for people to become members of that profession. So, the PhD helps them a lot.{/purpose>disciplinary}

Has that changed considerably from the time you actually did your PhD?

I think at the core, no. {change>system}How the UK PhD training in my own area has changed is that it's become much more technical, much more focused, [and] much more specialized. For instance, this used to be a difference, and is no longer the case. {change>content}And it used to be that in the US at the top universities when people wrote their PhD dissertations, they immediately wrote their dissertations in terms of 4 or 5 essays. They would immediately be transformed into articles for publications. So all there was needed to tie all of these things together as the dissertation, was that they were in the same field. They could treat totally different questions. I think that is a specialisation and a focus in expertise is quite different from all traditional centres of higher learning, centres of higher learning that go back centuries. Where the idea is you actually have a single large important question and your dissertation explores all the different aspect of that question. The way, in which UK PhD training has changed, is that they just converge to the US model,{/change>content} and there are plusses and minuses on that, I think the profession almost demands that PhD students studying at the UK universities, if they want to be successful in the US or worldwide market. I think PhD dissertations everywhere, even in Singapore, China, are now converging on the US model. {/change>system}

{change>content}{change>disciplinary}Is this a unique feature of economics?

I think yes, because economics, promotion for advancement in the field, what people count up are journal articles. Journal articles in certain select journals. That's until maybe at the very end when someone is up for a Nobel prize, all the way the promotion prospects, the advancement prospects, prestige prospects, are based on almost just a sheer count of the number of articles you publish in the top journals. Now at the very end of that process, when places like Nobel committee look back and said, "Well, who should we give the price to?", they do take into account the collection of coherent ideas that would make someone a potential candidate for the prize. But up until that stage, for each step along the way, it is almost a mechanical count. And I think that vision falls back into people's PhD training. How many, can I get 5 of my essays published in the top journal.{/change>disciplinary}{/change>content}

Is there any positive or negative aspect of this change?

{change>system}I think there are both positive and negative aspects. I think obviously, if all the people did was trying to maximise the count of the journal articles, then they don't really have to think about what the big questions are. They just have to know what is the next article that will likely be published. And there is a lost of an oversight, when you know, an overview of what someone is doing, and that's a negative, I think. It's also negative because it means that those people who want to be able to do a bit more thoughtful, there are different direction, an overview direction, will be penalized increasingly by the profession.{/change>system}

To what extent have these changes shaped the PhD programme?

{outcome>skills>technical>economics}Well, I think the PhD programme has become much more, in my field, one of the first few years being where you develop tools and techniques and you almost have to force yourself not to think about what the big

questions are, because that detracts from your learning tools and techniques. And then, when you finish up your dissertation, you are applying those tools and techniques. {/outcome>skills>technical>economics}
{problem>research>viewpoints}{change>system}And again, with rare counter-examples people just don't think anymore about what the big questions in the field are. Every now and then something like the global financial crisis happens, and then people in the related fields, the economics field, macroeconomics, finance might stop and think for a second. But except for situations like that, it's almost a mechanical treadmill that people are all on. Now, is that good or bad? Well, it's not clear. It's obviously bad from in that it stops people from asking the big questions.But on the other hand, that might be a good thing. I think people need the kind of maturity and experience and great breath of knowledge before they can really be productive thinking about the big questions. So while they're doing that, it might well be a better thing for them to be honing their skills at presentations and answering small questions by being very technical yet expert in that. That's the direction the profession has taken and I can see benefits and disadvantages from that.{/change>system}{/problem>research>viewpoints}

Do you see a potential career trajectory beyond the academy for PhD students?

The PhD students, yes.{outcome>employability} Certainly, in economics, I think among the very successful people, many of them will transit to high up policy making positions in central banks, at international financial institutions, [and] there are some who become economists and advisors full time to governments and large global banks, large global financial institutions. {outcome>traits>meticulous}To the extend that, they use their knowledge carefully, thoughtfully, I think that should be view as a very natural trajectory,
{/outcome>traits>meticulous}{implementation>employability>negative}there are of course other academics who view it as a stigma[?] that they would have to step outside academics. That's a choice that people make.
{/implementation>employability>negative}I hope that more and more people in my profession don't view that as anything taken as given but that's the deliberate choice.{/outcome>employability}

As a supervisor, what do you hope that your students would get out from the PhD programme?

{outcome>disciplinary}{outcome>skills>technical>economics}{outcome>research>bigpicture}Well, I hope they get a little bit of both the technical expertise and the presentation skills on the one side. But also an appreciation for, later on in their career, what the over-arching big picture ought to be, and they will be different in their time just as it's different [from my time], it'll be different in their time from what the big picture now is, what the big picture problems now are. But I hope that they get an appreciation of that, it's not just solving technical puzzles. They have to do the technical puzzles if they want to get ahead in their profession for the first few stages. But, I hope they get an insight into wanting to do something more than just that.{/outcome>research>bigpicture}{/outcome>skills>technical>economics}{/outcome>disciplinary}

{implementation>research>ideas}{role>supervisor}How do you actually strike that balance?

That's a very difficult question to answer because there are different levels that which

you have to address. One is just to be clear in my own mind, what the right balance is. Second is being able to express that in such a way that they don't misunderstand, that they don't think one versus the other. I think different academics, different people approach these problems differently. For myself, what I try to do is set an example, try to continue do technical work but at the same time try to be able to speak to this larger over-arching picture. And I hope that by learning from that example, they will know how to take things forward.{/role>supervisor}{/implementation>research>ideas}
Coming back to your personal view, what should the balance be? How much?
How much? {problem>research>viewpoints}It's a very subjective and very personal balance that each individual has to draw. I think that in economics, there's a sphere of competitive advantage in the sense that depending on your relative balance of skills, you have to shape your activity in the direction that most benefit yourself and then also benefit those around you simultaneously. And I think it's a question of competitive advantage. Even some of the people I admire most in the profession are extremely technical people. But at the same time, they can speak with great conviction, they are very persuasive, and they have great breath of knowledge, they can be very convincing on the big picture. Of course it is a rare individual who can do that. Most people are either one or the other. I think that the right balance is very subjective. But if I could be allowed for a quick further on that, how people decide what the right balance is, I think, should be based on the incentives that confront them. In economics and social sciences, we know and learn that what we assume people do but what we also, after assuming that, we believe that it leads to the right outcome to society, is that people need to be responsive to the incentives. And by the same token, I think academics and economist need to respond to the incentives that they see. So, if someone sees a greater demand for certain kinds of activity, I mean there are certain kinds of questions and they find they can provide useful answers where they themselves learn and other people learn from the answers that they provide, then I think they should be doing more of that. And you know, having noted that, however, I think that markets don't actually work very well here. I think the academy puts all kinds of barriers and obstacles to individuals within the academy seeing these incentives right, and I think that if I could have a wish list for how the academy can improve both themselves and the world around them, is to make the academy more transparent, to have the academy more responsive and more open to signals and incentives that markets outside sent them. I think we don't have enough of that.{/problem>research>viewpoints}
{problem>research>viewpoints}Do you think that current incentives for PhD programme, especially in economics, are driving towards the technicality and less incentives for people to explore the big question?
Yeah, I think yes, but I don't think that's necessarily a problem. {outcome>skills>technical>economics}I think it's a transition phrase, where you know, not just economics but also sociology, political science, many of other social sciences, were in the early part of the 20th century when they have just started off, were descriptive, not totally precise but they were insightful nonetheless. There was a lot of description and textual, verbal description that I think made others, sometimes difficult to follow. I think the technical formalisation has helped in many dimensions. For certain questions, it's extremely helpful to be technical and formal and precise. {/outcome>skills>technical>economics}{outcome>research>bigpicture}But I think that

the reason that this is a transition problem, is that sometimes we do that and then we think that we should have stop there, we think that solved the problem. I think that's only part of recovering, crawling our way back to original question, the big picture question. I think many of the social sciences are in this transition phase. We realised that we need more than just a description or the big picture. We realised that we need the technical formalisation, but somewhere along the way forgotten, I think, that we need to after doing the technical formalisation, come back to the big picture and ask why it matters and then actually effect the world, use what we have learn to change the world in the direction that our ideas suggest. I think that last step, we could probably do a lot more of.{/outcome>research>bigpicture}

So that's your idea of the current transition that we are experiencing, and that is moving back towards the big question?

Yeah, because if we don't then, {change>disciplinary}{role>institution}you know then in light of the goal of financial crisis, everyone likes to talk about how the Chinese stock market is a bubble, or the US housing market is a bubble and the run up to the financial crisis. One of the characteristics of the bubble is that its participants refer only to each other for validation. Someone who thinks the house prices are high looks as somebody else who also considers house prices. Now, someone who thinks that house prices although they might be high, should continue to raise, looks for validation from others would think the same. And when this system is close to that way, a system is right for bubble emerging. I think academic sometimes faces that problem. We believe that it is right that only scientific experts judge our own scientific output. But, I don't think we stop and ask the question where do we get the external validation. I think it is the last step that we need the external validation to prevent the academics from approaching the bubble-like behaviour and we need that external validation.{/problem>research>viewpoints}

How do you see that comes into PhD education given that PhD is the future training for academics?

I think that the host department or the supervisors play a big role here. They need to constantly be there through their own actions, remind the people around them, that there is this reality outside that they are addressing. I think that holds true for whether you are doing economics, sociology, development studies, media and communication, anything, you need that external validation. There are academics who think that, well, that's cheapening ourselves, that's going outside of the scientific opinion. Well maybe, but who's to say that's not a good thing.{/role>institution}{/change>disciplinary}

Is there a particular approach how you actually help your students to develop that kind of skills to be asking big questions? Is there any particular approach in your supervision?

{implementation>skills>technical>economics}{implementation>research>ideas}I think that one wants to be not heavy-handed. I think every now and then someone, a supervisor can ask that kind of a question, and then leave it for the students to think about. I think in helping the students develop their technical tools, you can be interventionist. You can say, "Ok, this is the way you do it. It is more likely approach". But I think in terms of the larger, extra discipline question, I think a light touch is needed. That light touch comes from asking a question at the right point.{/implementation>research>ideas}{/implementation>skills>technical>economics}

Besides the technicalities and abilities to ask questions about the big picture, is there any other abilities that you expect your students to develop within the 3 to 5 years?
Yeah, {outcome>traits>selfconfidence}I think that like many others, I think that I would like them to have self-confidence in their own skills, a proper view perspective upon how their work weighs against relative to the discipline more generally, a confidence in the skills that they have in the role that they can play. And also the perspective on the trajectory going forward that it doesn't end here, that what's much more important after doing the PhD dissertation, is to go on and do the next thing.
{/outcome>traits>selfconfidence}
Is there anything particular that you actually hope that your students would develop to help them for future careers outside the academia?
{outcome>skills>criticalthinking}I think I would have said that, I hope they continue to develop dimensions of themselves in the few years that the supervisor have with the student. It's very difficult to transmit a lot more knowledge than what is really required for doing the PhD dissertation. So, the only thing you can inject into that stream of thinking, is that they need to continue to develop, that it doesn't all end at the PhD dissertation.{/outcome>skills>criticalthinking}
Do you see any essential skills or knowledge that students need for them to develop, if they have a career interest outside of the academia?
{outcome>research}The essential knowledge I guess it would be the insights that whatever that they are doing at that point, there's a lot more other things that would be interesting to them, then they should explore. They should finish up what they're doing right now and then have an open mind, to the next thing to explore.
{/outcome>research}
How do you actually access your students that they have developed the ability related to the big picture?
I think concretely, it's just, I think of doing that as something that would happen 5 years after they leave, 10 years after they leave. So, it's a matter of keeping in contact with them.{outcome>research}{outcome>traits>selfconfidence} I think in the time that they are here, I would like to see them progress to having the confidence surrounding their dissertation. That's the single most important thing.{/outcome>traits>selfconfidence}{/outcome>research}
{assessment>viva}Is there any other form of assessment throughout the PhD programme?
Not really. I think that the only criterion at this point is how successful the papers turn out to be, how successful their publications turn out to be. That's almost like a necessary pre-condition for them to want to go on and develop these over-arching big pictures.{/assessment>viva}
Are there any other issues that you would like to highlight?
No, not really. [pause] Well, I guess in economics specifically, because a lot of what we have been talking about I think are quite general issues. I think that general issues are nonetheless pertinent. But in economics in particular,
{programme>individualistic}{change>disciplinary}we have to realise that everyone only has one PhD writing experience. You only ever write one economics PhD. So there's a great danger that all the prejudices and biases that your advisor has will be transmitted to you, in a way that you don't know because you don't have any way of comparing what an alternative PhD writing experience is like. So you carry these biases and you

don't even know the biases and prejudices and you never discovered them, because this is only, the one time you got ever. {/programme>individualistic}What I've noticed more and more is that there will be PhD students who carry these biases around and I noticed them more because I see them coming to me and they will say something and I would not understand where they come from except that after a little bit more of the conversation, I appreciate that it comes from a prejudice that their advisor has, which could well in turn have come from a prejudice that advisor's advisor had and so on.

Give me an example of a prejudice or bias.

Ok, here's a prejudice that once someone sit back and writes a book, that's a bad signal. That is the language that people use, that's a bad signal. It is a bad signal that they retired from writing technical articles. And the statement that it is a bad signal is a value judgment that actually has very little thoughts surrounding them. From our earlier discussion we know that the major contributors to this field are precisely the ones who had taken the time to sit back and to think about what the over-arching big picture is. But there are many more bad economists than there are good economists, and so, by bad economists I don't mean people who don't publish, I mean some people might actually be publishing a lot. But they carry these viral ideas with them and they transmit them. And I think there's a danger there.{/change>disciplinary}

Is there anything in particular that you would like to share about PhD in economics?

No, I'm pretty much all talked out

And just a last question, how do you characterised an ideal PhD student in economics?

{outcome>skills>technical>economics}{outcome>traits>selfconfidence}{outcome>traits>curiousity}Someone who is already very well tooled up{/outcome>skills>technical>economics} but also is not afraid of going out and learning many new tools and who is not afraid of appreciating that things that he or she writes down are quite a distance from the world and want to know [and] learn about that distance.{/outcome>traits>curiousity}{/outcome>traits>selfconfidence}

Ok thank you very much

I hope that is useful to you

[END]

[START]
Do you have any questions before we begin?
Nope.
Thank you for your time. Can you just share a bit about your background?
Sure. I grew up in the Northeast of England, went to school up there, and came down to [redacted] to do my undergraduate degree, which was in Modern and Medieval Languages – French and Italian. After that I worked for a year, and then did an MA at Taylor here in London. Then I went and worked in a non-academic sphere for another two years, came back to academia, and started my PhD here at Taylor in September 2009.
So you actually left to work after your MA?
Yeah, that's right. I felt that I wasn't at all sure that I wanted to do a PhD. And this is how it turned out after two years of work.
From your background, you seem to be more of a linguist than an historian.
Yeah, exactly. I mean, I'm sort of a cultural historian now, but the MA sort of brought me across from languages to history.
So why are you doing a doctorate?
{purpose>academia}{purpose>personal}Because in the period when I was working after I did my MA, I was working partly as a classical singer and partly working in classical music administration and management. This is the reason why I didn't start my PhD straightaway after my Masters, because I felt I wanted to see if I could make a career as a singer. Hence having started off mainly singing, almost full time with this part-time management work on the side, [but] after a couple of years I found out that I was working management work all the time and little time singing. I felt like I really had to make a change, make a big break and come back to something that I really wanted to do. So I worked and was enjoying the management, but it wasn't something I wanted to do as a career. And so this was just part of a long drawn out decision making process. But one of the things that I have really enjoyed in life is academia. And so, doing a PhD is something that I could do and I thought long and hard about whether I'd be prepared to be an academic at the end of it. Because at that point in my life, I wouldn't have done a PhD just for the sake of doing a PhD, if I didn't think that it could eventually lead to a career in that. So it was partly kind of life that just wanting to make a big change and partly to see whether I would want a career in academia.{/purpose>personal}{/purpose>academia}
So besides that, what do you actually hope to gain from these three years?
{outcome>disciplinary}In terms of actual research, the area that I work on is the papal court in the late 13th century. My period is about 1275 to 1305, roughly. What I hope to get in terms of research at the end of it, is a picture of what cultural life was like and actually what cultural activities were going on in the papal court in that period. And especially work at how that would relate to the sort of changes in the administrative structure of the papalcy at the time and the connection there is between the two, and also what you can say, sort of in a larger framework about the way the papal court fits in with the thoughts about the cultural history at the time.{/outcome>disciplinary}
You said that you were undecided about your career destination?
Yes.
{purpose>research}{outcome>personal}What would be the sort of your ideal career destination after the PhD?

My ideal career destination would be to go back to be a singer. I have to say, I still do study singing. I take lessons. One of the reasons why I ended up working so much in academia is because, for very technical reasons, I just found that I wasn't able to do the sort of singing work that I wanted to do. But that kind of thing is a nonbearing struggle. So it's not clear at the moment whether that will be a realistic expectation at the end of the day.

What about a career closer to what you're doing in your PhD?

Well, that's the other thing. I mean, I'm sort of at the beginning of my second year now, I'm aware that in about a year's time, if I end up completing on time, in about a year's time, I should start thinking about applying for jobs after the end of my PhD. I'm thinking very hard about whether or not I think I can still build a career in academia as a historian or not. And I have to say, having gone into the PhD feeling very much like it was something that I felt I could do, after a year I'm wavering a lot and very unsure about whether I would want to stay in academia afterwards.{/outcome>personal}{/purpose>research}

You are now in your second year. What have you actually gained out of this programme so far?

{outcome>disciplinary}{outcome>skills>technical>history}I suppose I've gained a massive amount of breaths and knowledge about my period, but that's one of the main things I feel I've got, because I came from a non-historical background. One thing I've had to do is to work quite hard to get a good general overview of my period's historical view that I expect a lot of my contemporaries as historians would take initial courses at the undergrad degree. But also I've learned an awful lot about research techniques and first-hand research with primary resources, [in terms of] what it requires and what it takes, which really I had no idea about at this time last year.{/outcome>skills>technical>history}{/outcome>disciplinary}

{implementation>skills>languages}{outcome>skills>languages}And given your training as a linguist, how does that actually help you to develop as a research historian?

Massively. My two languages at Cambridge were French and Italian. And in my field in history, that's a massive help, because so much of the secondary literature is in French or Italian. Some of the primary resource material is in Italian, very little but some. I mean that's a massive advantage to begin with, because a lot of historians don't have much language at all, beyond maybe just English. Two things that I've had to do for my PhD are to learn German and Latin. And having done a language degree, another huge advantage was that I just knew what to do to learn a language. I knew what works, and what doesn't. So I think it's possibly less of a struggle for me than for some of my contemporaries to bring those other languages up from scratch.{/outcome>skills>languages}{/implementation>skills>languages}

Are there any other abilities that you have developed during the course of a PhD?

{outcome>skills>research}It's hard to say at the moment because I spent so much of the first year is spent doing general reading. So other than the actual hardcore language skills, I mean I've certainly developed skills in using some of my primary resource material, I read a lot of papal letters in Latin, which are written in very specific sorts of Latin. I look at a certain number of accounts, financial records, which again are always written in a certain way and so in terms of hardcore research skills, I've come a long way in learning how to use those resources. Other than that, it's hard to put my

finger on something that's been a massive difference between just between undergraduate or Master's level work.{/outcome>skills>research}

I understand that learning to handle manuscripts is one of a big thing in your field. How is that coming along?

Yes, absolutely.

{implementation>skills>technical>history}{outcome>skills>technical>history}{implementation>research>Master}Well, here at Taylor, the Masters, I think it's compulsory and a core course in palaeography, which is manuscripts handling and research techniques. And so, really, all of the manuscript handling skills that I have now, I learned then. Last year, I followed an MA course just out of personal interest in Medieval Latin literature, which involved a big Latin editing project and that involved actually transcribing a lot from manuscripts in order to put together an edition of the text that haven't been edited before. So that was really useful in reminding myself to revising and getting my skills back up to scratch in terms of the palaeographic skills, the actual reading of the script and how to treat a manuscript to do. When you use a manuscript, you always have to set out a manuscript description, it's just a sort of research technique thing, so that's, people can see what's the manuscript you're working from. And that was, they're not meant to be difficult skills, though reading a script can be quite hard, but it was very useful to have us brought back up to scratch.{/outcome>skills>technical>history}{/implementation>skills>technical>history}

To what extent has the MA course actually prepared you for your PhD?

Massively. From the course of that MA, I had those core courses in manuscript reading and research techniques. Also, I took a course in Latin because although I'd done it in school, I bet I forgot it all and I felt like starting again from scratch. And the whole process of going through the Masters with those core research skills training courses and also the process of putting together my Master's dissertation as well, which is more than an undergraduate, which is closer to a chapter of a PhD thesis than it is to an undergraduate essay. Overall, really great training for the PhD.{/implementation>research>Master}

And then you went on to work three years, has the MA been helpful in any way?

{outcome>employability>negative}Only marginally, in the sense that the training gives you in thinking intelligently and critically about complex issues, [which] you can transfer across to other aspects of life. But really, it didn't relate in any way to the work that I did musically. And then the work in music management that I was doing, because it was much more practical and about interaction between people, I guess it's a little bit of in the sense of that critically thinking about things, but there was no real practical application of it for me.{/outcome>employability>negative}

And do you foresee any practical skills that you can learn in your PhD that would be helpful for you if you eventually go back into the career of singing?

{outcome>skills>languages}{outcome>employability}I think the only thing that would be helpful would be the additional skills in German and Latin that I have, through having had to learn them in order to read the primary and secondary literature. Because a lot of the classical repertoire are in Latin or German or other European languages.{/outcome>employability}{/outcome>skills>languages}

Any other more practical skills that you have picked up in your PhD programme, like generic skills or transferrable skills?

{outcome>skills>writing}{outcome>employability}{outcome>skills>research}{outcome>

skills>criticalthinking}I think there are two transferrable skills. One, very similar to what I said about my Master's, is the ability to think critically about complex things, [which is] always very helpful. And secondly, just the process of organising quite a complicated and detailed primary source based research material, has been something that is quite new to me in a way, just managing a body of data that large and organising it. Again, if I were to go on into a career that involves writing reports, you can quite confidently be able to take it like that, although it'll be on a completely different topic, I'm sure, just the ability to connect, just the knowledge of how to handle a dataset like that could come in handy.

Is that essentially research skill?

Yeah, you can say that.

You foresee that it might be applicable for your future career, even not in the academia?

Yeah,
definitely.{/outcome>skills>criticalthinking}{/outcome>skills>research}{/outcome>employability}{/outcome>skills>writing}

Is there any form of assessment that you have to go through in your course?

Yes. There are two things. {assessment>transfer}One is the upgrade from an MPhil to PhD and in the history department at Taylor we have to do three things. We have to submit a chapter which doesn't have to be a chapter that ends up in the actual thesis. It just has to be of equivalent to, it's basically around 10,000 words. And then we have to present a 20-minute paper about our topic to our peers at the research training seminar for postgraduates and PhD students in the department, which meet every second Tuesday, and that is where that happens. You give your 20-minute paper, which is supposed to be for a non-specialist audience, it's only 20 minutes long and it's not very in-depth. It's basically to present the outline of your topic, so the other PhD students can ask you for the question and answer session afterwards. And then if those two things are passed basically, they're approved, then you have a viva, which lasts I think about an hour with the Graduate Tutor and an examiner, and I think your supervisor sits in there as well. And you have to pass that as well in order to be upgraded. And then after that, the next assessment is when you actually submit your final dissertation.

Have you actually done your upgrade?

No, you do your upgrade at the time that you're scheduled to do your presentation. So my presentation is scheduled to be at the end of next Spring term. So I'll have to submit my chapter a fortnight before my presentation, and then my viva will be within a week or two afterwards.

How's the preparation coming along then?

It's alright. I mean, in my case, the contents of my presentation will be basically an explanation of the actual research that I'm doing, the work that I do with the papal letters and accounts. That's sort of a practical demonstration using perhaps what I can make out of it. So I'm kind of working on stuff that I already have in the bag for that. I haven't started doing the writing yet, so that will be a lot of work going into that. As for the viva, I think by the time you get there, having done your presentation and written your chapter, if you're not ready to go in your viva and know your stuff then, something's wrong.{/assessment>transfer}

What's the role of the supervisor at the moment, in terms of preparing you for your

upgrade?

{role>supervisor}Well, I have a very proactive supervisor in the sense that he makes sure that he sees me, as all of his supervisees, every fortnight, even if it's only for half an hour or 40 minutes. Because he sees me so frequently, his role is mainly just to keep check on my progress and to give continual feedback and advice and a little bit of input on what I can do and what I have to note of what's less interesting that's not quite worth pursuing, or I'm going in quite the right direction. I think he gets to read my chapter before I submit it, so I'll do that. So when the time comes I'll give it to him and then take some feedback from him on my actual writing. I think it's against the rules for him to give me a sort of trial run of the viva. So that's out of the question. I think he's allowed to hear my presentation, so I could actually give him my presentation in a trial run and hopefully get some feedback from him on that.{/role>supervisor}

Is there any other sort of training that you have to go? Anything run by the department or any course that you have to attend?

Specific to my research, sort of yes and no. {implementation>research>seminar}I mean that research training seminars that I mentioned, it's obligatory, it's compulsory. But it's not subject specific, so it's not hardcore research skills related to medieval history, just a little bit of training in using historical databases for example, or historical research resources available here in London and stuff like that. As a research student in the history department at UCL, you're supposed to follow one of the regular seminars that run at the Institute of Historical Research, or one of the other research institutes in London. So I go to a seminar, a fortnightly seminar, on European history 1150-1550, and that's probably the most useful thing that I do, because you get to hear academics of different kinds working on medieval history, and of different levels of experience and status talking about their work. I mean, that's what going to a seminar is about, you learn a lot just from listening to somebody speaking about their work, and seeing what sort of work they do, and learn by example, really.{/implementation>research>seminar} {implementation>skills>languages}And then last year I took a German language course in reading academic German through Taylor's Language Centre, which was pretty useless I have to say, I didn't learn very much from it. But I did then do a month of German training, at a language institute in Munich.

Who actually funds the trip to Germany?

I was funded jointly by the Taylor Graduate School, which gave me about two-thirds of my funding, and the History Department itself, which gave me the other third.

Are you an AHRC-funded student?

I'm not. I'm funded by the Taylor History Department itself, which has every year a studentship to give, which is equivalent in the amounts of money you get with an AHRC studentship.

So the funding for the language training also comes from jointly by the Graduate School and the History Department?

Yeah, but it's separate from my actual studentship.{/implementation>skills>languages}

Is there anything else that you want to share from experience?

{role>institution}{role>otheracademics}{role>peers}There are a million things you could say I guess. I guess the main thing that struck me over the course of last year, which I sort of knew in theory beforehand, is just how much work in medieval history is

going on in London, and what a strong research centre it is, just the enormous quantity of primary resource material that is actually available here within a square mile between the British Library and the Bloomsbury, and just the number of medieval historians who were actually working here, in comparison to other areas of the country. It's quite surprising, in a way.{/role>peers}{/role>otheracademics}{/role>institution}

How do you characterise a good PhD student?

{outcome>traits>efficient}{outcome>traits>selfmotivated}{outcome>skills>communication}Someone who's well-motivated and works in a professional and organised way with a good sense of ambition and personal motivation. And of course, who does interesting and important work in the course of their actual research. And who can communicate well, actually, in terms of what makes a good research student. If you come across some people who are doing really good work but they don't have the skill to present it very well, it's a shame when that happens.{/outcome>skills>communication}{/outcome>traits>selfmotivated}{/outcome>traits>efficient}

Thank you very much for your time.

My pleasure.

[END]

[START]

Once again, thank you. Do you have any questions before we begin?

No. You fire the way.

Can you just tell me a little bit about your background?

Yes, sure. I was born in Plymouth and I am 26 years old. I went to a comprehensive secondary school, nothing special. I supposed I have a tricky route into university because I don't have an A-Level to my name. I dropped out when I was 17. It was a tricky few years of my life and I went back to education a few years later and completed an adult education course. It is called Access to Higher Education and it is designed for people a lot older than I was when I did it who had come back to education, and who didn't have conventional qualifications and it is just a year's course just to get you into university. And certain universities take that as an alternative qualification rather than A-Level. It is a year course where you study either humanities-based or science-based and I did English, history, psychology and sociology, and it is just pass or fail, and on that basis, the university will take you. Then I went to [redacted] University where I did a degree in history and this where it is sort of the starting point where I clicked and got a first class degree and top of the class. And I went on to do a Master's there on a scholarship. The way I came to Smith was a bit of strange. I actually have a place at Oxford University but I couldn't get funding for it and then when Smith had a place, they offered me funding, so that is how I ended up here. So I imagined it is a bit of a different route than most PhD students.

Do you have any working experience?

While I was doing my degree. I worked as an office cleaner. So I will clean [offices of] solicitors, financial advisors and things like that. I get up early in the morning at 4 o'clock, before I went to university, and clean and I do some in the evening as well, I did it throughout my degree and my Master's. And I worked for Pilkington Glass. A friend of mine who was the General Manager needed some training manuals, so he got me to do it. That lasted for 3 months, the final stages of my Master's. And then I started on my PhD and I haven't worked outside university since then but I taught as a sessional teacher. I taught a course with the first years last year and I part taught on several other modules as well.

Why are you doing a doctorate?

(laughter) It is a very good question.{purpose>research} {purpose>personal}I am very passionate about history. I am inherently a nosy person, I like to know how things worked, why things happened. So that sort of led me into being interested in history and physics as well, which is the other side of it. {/purpose>research}Why am I doing doctorate in history is a slightly different question. I suppose I never really know what I wanted to do. After I came to university I started doing well in terms of my degree in history. I thought I should continue and I was encouraged to continue. And not knowing what to do next and people encouraged me to continue, I thought I might as well carry on until someone said, "You are not very good anymore, stop". So it has never been an overarching ambition of mine to do a PhD in history or indeed study history. It is just something sort of fallen into along the way. I stumbled into it. I never planned to do PhD. {purpose>nonacademia}I think I first started thinking about doing a PhD when I was an undergraduate in my third year and my lecturer said, "You should think about taking this further", and was when it first came into my head. Before that, I thought about going into teaching as a schoolteacher, and I think it is something I may

return to eventually. I tend to sort of enjoy the interaction rather than being stuck away in the dusty archive all day and not talking to anyone.{/purpose>nonacademia} {/purpose>personal}

Then what is next after your PhD?

{purpose>nonacademia}Because I haven't had a sort of a grand plan, I don't really have a next step. It is getting quite scary to me because now really, in terms of education, there is nothing much really, perhaps except post-docs, and times are tough and jobs of post-docs are kind of bleak over here especially. I don't know. My philosophy in life is to give myself a lot of doors to open and not to be too "one track". So I don't consider myself to be particularly academic and I can work in the outside world. So I think I can turn my hands to, within reasons, pretty much anything and I have no grand plan, but teaching probably. I think I am going into teaching{/purpose>nonacademia}

Let us just imagine that we are now at the job interview for a teaching position in a university or in schools and you been asked, "What have you learned in your PhD that is going to be applicable for the job that you hope to get?"

{outcome>teaching}{outcome>disciplinary}{outcome>skills>research}I should be able to organise and able to construct and disseminate a project of a very high quality. The problem with historians is they tend to focus on the knowledge and skills that are learned. So I will talk about skills like disseminating information, analytical skills, and teaching. I have been teaching and I have teaching experience. That is a very important skill.{/outcome>skills>research}{/outcome>disciplinary}{/outcome>teaching} {outcome>personal}And I suppose that is the key question really, "What does your PhD teach you? What you get from it?" I mean I am not probably in the best place to answer this question at the moment because I am not particularly happy with my choice of doing a PhD. (long pause) I learned a lot about myself I think doing PhD rather than skills that are good for a job. It is an odd experience and I have learned the good things about myself and bad things, and again I can't really give you any specific examples.{/outcome>personal} {outcome>teaching}But teaching has been great and the experience of teaching and standing in front of the class has been really good. {/outcome>teaching}I think I am going to leave it as that because the other stuff I am going to say, I wouldn't really believe that because that is what you are supposed to say but I am not convinced. I won't get the job if you asked me that (laughter).

Can you talk a bit about the research process that you are going through for the past two years?

{relationship>studentsupervisor}{problem>studenttransition}{problem>personal}Well my sort of PhD process hasn't been a good experience so far. I came here with what I thought was a good project and a good idea, and I was told, "Yes that is ok but you need to take this and this", and my project now is totally unrecognisable from what it was when I started two years ago. One of my main problems has been my relationship with my supervisor and that has been a big part and integral to my research, is being the big part of doing purely research but it is so integral to my research. So I can't really get away from that. I had this idea and it changed so much that it wasn't mine anymore. So I pretty much wasted my first year, I didn't do that much work because I wasn't really sure what I was doing. I did not know where to go in terms of research or what I should be reading. So I have myself reading a lot of general stuff, and going into archives and reading stuff I thought was relevant, but didn't really mean that much. Recently my project has become more focused or targeted and I am been able to go to

archive and look at specific file or sections, and I know what I am looking for. So it hasn't been a nice time for me. I fought with my supervisor and she no longer has anything to do with my studies here at Smith. And I have changed supervisors and that has been the sort of main problem that I didn't feel part of the university. I first moved to Smith when I first came here and in my first year I moved to London because I felt I have more friends in London and I did not feel part of the community here. I got to say this has somewhat changed now. I spend a lot more time in Smith and I feel more sort of part of this place with friends and teachers and things like that, and I am a lot happier with my [current] supervisor.

So you actually have another supervisor when you first came?

Yeah, my supervisor now which is S13, was my second supervisor. I don't really want to bore you with the sort of my relationship with the first one, but it was quite a personality clash. She was very focused, ambitious and my project was moving away from what she thought was going to be, and my thinking was also moving away from hers. And I think the tension and clash came because she did not like where I was going, it was not here area and therefore she did not want anything to do with it. And that caused turmoil in my PhD and I did not really want to be here at all. That is why I am now quite behind. But I managed to pick up stuffs recently and I have done a lot more work in the last 18 months and I am getting more comfortable here and I am getting there slowly and starting to enjoy doing PhD. I suppose that is why it is so difficult to answer your earlier question because I haven't really gotten anything out of it as yet. It has been more negative to it so far than a positive one.{/problem>personal}{/problem>studenttransition}{/relationship>studentsupervisor}

Given the problems that you encountered, what is the role of your current supervisor in terms of helping you to get started again?

{implementation>supervision}{relationship>studentsupervisor}{role>supervisor}I suppose he is trying to build my confidence. I am still struggling somewhat but I feel a lot better than the beginning. So he is very hands off. He is extremely relaxed and so he will happily talk about my project and my PhD in a relaxed and informal chat and will socialise outside of the university setting. Whereas the previous supervisor, I was bombarded with emails all the time, like why were you not at the seminar, what are you doing about this, and it was very intense. And when we have meetings, they will sort of play good cop and bad cop, where she will be sort of fiery and angry, while he will be more relaxed. I sort of see more of myself with him and therefore I find it easier to get on with him. At the moment, my supervisor's role is sort of be there for me and I need to talk about things, read my work, give me encouragement and that is the role that he plays at the moment I think.{/role>supervisor}{/relationship>studentsupervisor}{/implementation>supervision}

What is the role of the department when you come across this problem?

{assessment>transfer}{role>institution}So the head of department has now got involved in my PhD. This whole problem came in the summer when I had to produce two pieces of work and it was only two pieces of work that were deciding whether they should continue my scholarship or not. It was the upgrade meeting. It all seems to come very late in the process and I am still officially not upgraded because the work they asked me to produced wasn't mainly primary based and they want to see primary

research officially, which I am preparing for the formal upgrade meeting end of this month. But it came in July when they said they wanted these two pieces of the work, and I think the idea of the meeting, I don't think the quality of my work is in question, I think it was to show my commitment to the university. Before the meeting I happened to start dating with secretary in the department and I was spending a lot more time in the university, not just for that reason, but because I was realising my time is threatened. As soon as I thought I was going to be leaving the PhD environment, I became very sort of anxious and it made me realised what I was missing out when I am not engaging with it fully. So John got involved with that meeting and that meeting was with Mary, S13 and Jim, and had I not been a problem, the department wouldn't have been involved. And I am not entirely happy with the way I am been sort of managed. It was very obvious from earlier on that my former supervisor and we didn't get along. This is partly my fault and I am not saying this is hers or anyone else's fault, but it was clearly something wrong. I wasn't here, I wasn't interested and this wasn't picked up on until this year, which is over 18 months since my registration as a PhD student and there were monitoring meetings.{/assessment>transfer}
{assessment>annualmonitoring}I can give an example of what monitoring meeting I had in my first year, 8 months after I started. They asked me to produce some work, I submitted a 500 word essay on what I was going to do, my sources, methodology and things like that, and this essay was a pile of crap, it was awful, it was absolutely useless and I sat on the meeting and they was like, "This is very good and we like these ideas, we liked this, we liked that. And thank you for submitting, it was good". And I thought I walked out of that meeting and though I got away with it and then I think, I know that was rubbish, why are they telling me this is not focus enough. It was very broad and I knew it was rubbish. I didn't understand why they are saying there were some good ideas, they never pressured me and go pin down my ideas. I later spoke to my current supervisor about this meeting this year and I said to him what I have just said here and he said, "I remembered that meeting and I remembered thinking this got no focus, this need to be a lot more precise", but he didn't say anything at that time. I just wondered what was going on, why wasn't something said?
{role>supervisor}{programme>individualistic}{relationship>studentsupervisor}{problem>personal}Maybe because I am the first from my family to go to university and so I am not from a particularly academic background and so I never met anyone with a PhD until I came to Smith. So my expectations about what PhD was about and the role of the supervisor, I think maybe, were a lot more different than my previous supervisor who came from an Italian system and is very much hands off. But I was always looking for help, assistance and encouragement and I wasn't getting it and maybe she felt that she should be more hands off and let me get on with it myself, so that was what clashes as
well.{/problem>personal}{/relationship>studentsupervisor}{/programme>individualistic}{/role>supervisor} So the department hasn't been involved at all until it got serious, in terms of wanting to kick me out.{/assessment>annualmonitoring}{/role>institution}
So I presume you are now preparing for your upgrade?
For the moment, I am writing small chapters based on primary sources for the meeting towards the end of this month.
Have you learned anything from this preparation?
{outcome>skills>technical>history}{outcome>skills>writing}{implementation>research

>Master}I did not do a conventional MA and I did an MRes instead, which is a mainly thesis component, so I wrote a 20000 – 30000 words thesis, rather than doing more modules. So I was pretty experienced using primary materials to construct the thesis. But what I learned recently is what I did for my Master's, there is a lot written on it already, so there are lots of secondary stuffs. Whereas for what I am doing now, there is no secondary stuff and I have to construct a narrative as well as analysis and things like that. And the last few months, I realised how much primary research you need to do just to write a 10000-word chapter. It takes so much longer to write when there is not so much of secondary research. That is something I have learned. I just can't write a chapter in a month, which is a very naïve perspective I had when I look back at it.{/implementation>research>Master}{/outcome>skills>writing}{/outcome>skills>technical>history}

How to you realised the importance of primary research?

{outcome>skills>writing>disciplinespecific}{outcome>skills>technical>history}I went away to do some research and I thought I can write something from there. But I just cannot because [although] I can tell a story, but I need so much more to analyse it and turn it into a PhD rather than a narrative description. So by just sort of writing, I know I need more.

{/outcome>skills>technical>history}{/outcome>skills>writing>disciplinespecific}

Given that you did a Master by Research instead of a conventional MA with lots of courses, do you think it would have been more helpful if you have done an MA instead?

{problem>skills}{programme>training}It is an interesting question. I have always been wary about training courses in PhD. When I was doing my MRes, we had courses like that. It was a research method course for all first year MRes across the arts and humanities. So we have students in architecture, history, English all in one class. It was rubbish and I did not get anything [from the course]. That is why I am sceptical of research with training courses. What I like to see is a bit more of a structured supervision arrangement, which is sort of half way between what it is now, either courses that we have now and supervision system. I don't know how that would work. {/programme>training}{/problem>skills}

If you could step in the shoes of the person in-charged, how would you actually run it?

{problem>skills}{implementation>skills>research}{implementation>supervision}{programme>individualistic}I would rather do it on a one-to-one basis. I am drawing from my own teaching experience here. I think people learn at very different rates and people learn very differently. I started my PhD with another chap, in the same field and same supervisor as me. He was from Smith and he seemed to get along with my former supervisor and have a similar way of working, whereas I did not fit into that. So I don't think you can have this sort of generic course where everyone go and do it. It is too vague. You don't really get anything over there and I like to see more of the specific targeted one-on-one. I know this will involved much more time and supervisors do not seem they want to devote to PhD students. But if I were a supervisor, then I would like to arrange something with my students and tailored it to their needs. Or if I have several PhD students who learn in a similar way, perhaps [I would organise] a seminar and get them together, but none of these sort of vague and generic [courses] like getting everyone in the Faculty of Arts and Humanities together and teach them

research skills. I never ever get anything out of it and I never will.{/programme>individualistic}{/implementation>supervision}{/implementation>skills>research}{/problem>skills}

Is there anything else that you would like to talk about?

{problem>studenttransition}{change>generational}{role>institution}{problem>personal}{programme>individualistic}I think as you can tell, I didn't really have a good time. I feel like I am being sort of left out in some ways by the university and I think that it is quite a common experience across PhD students. The PhD experience is also very lonely. I like people, I like chatting, I like teaching, I like people, but doing a PhD, you got to take yourself away from people for the majority of the time. You can't research and write amongst a group of people. It is not a natural position for me to be in and I struggled to come in terms with that. And the university also sort of struggled to manage me in the right way and I would argue that there hasn't been much management. But that is, maybe they expect students to just come in write and off they go, I don't know, I think there is a lot more students doing degree these days, a lot more students doing PhD. Someone like me who failed my A-Levels and things like that, would have never done a PhD 30 years ago, and so I think the university finds that it is getting a different type of person doing PhD these days. It is just to say that they need to be managed differently. It is not that they are not able, but just a different kind support.

{/programme>individualistic}{/problem>personal}{/role>institution}{/change>generational}{/problem>studenttransition}

You mentioned about teaching. Can you just talk a little bit more about the preparation and training that you have to go through as a sessional teacher?

{implementation>teaching}In terms of the university support for my teaching, there was none. Apart from the fact that I was invited to sit in on a seminar or a lecture that was unrelated to what I was going to teach. The module that you teach, you pick a text and then you teach a historical topic around that text. So it is very personal and I had designed a module book of what we were doing every week. I pick a text and set exam and essay questions. I have no and is sort of totally left up to me. Having said that, I have been to a meeting this morning where the new sessional head has organised a "how to mark an essay" course. What we done this morning at the course was you were given a few essays and we marked it individually and then we talked about them. It was very helpful and that was very much the only thing happened because the person was doing it and thought it would be useful. It is not a department thing that new sessional teacher must go for it. So it [the teaching] was very much from my own experience and it came from me. I just did what I thought was right and I got very good feedback from the students. Apparently I am a natural teacher, but I don't think that is the case for everyone. I think it is just I am used to being with people and, even though I was nervous, I felt very comfortable quickly once I set foot in front of the class. So my preparation was reading and sitting down and thinking about how to about this text or topic. I just sort of do it in my head but I have no formal trainings. I know it is interesting that if you teach in a secondary school, you go through a year of PGCE, but now, it was like, "Hey man, here you go". Which I like in a way becase I thought it wasn't so constraint about theories that you learn about teaching. It was very natural, I just did what I thought was right. And when I was observed, the feedback I got was that my teaching was very

natural.{/implementation>teaching}{assessment>teaching}The other problem was the observation came in the last class that I taught in a year. So I started teaching in October, but I wasn't observed until March. From my perspective, I got used to standing in front of the class and doing my thing, there was already a mould. Then you have someone in the room, I was felt kind of odd. It might be useful if this was done earlier on.{/assessment>teaching}

Just a last question, how would you characterise a good PhD student?

Not me (laughter).

{outcome>multidisciplinary}{outcome>traits>intellectual}{outcome>traits>engrossed}Someone who is hard working, intelligent, and someone who looks beyond their field, is not too narrow in their approach. I have a contemporary that we called him Professor. He is such an academic in a sense that he is very narrow, he doesn't like anything outside of his field at all or waste of time, "Why are you studying that because that is not relevant. It is just snobbery". It is probably just security because he doesn't know anything else. But I say a good PhD student is someone who can communicate well their research to other people who aren't necessary a specialist, just as a good lecturer is who is not very elitist, incomprehensible and uses all these jargons. This maybe because I come from background that I just don't understand all these jargons in your language and I like to keep things simple and if I can't explain my research to someone who is not specialist, then I don't think I am doing the right thing. And so that someone who is being able to look beyond what they are doing and teach, and just be a normal person and socialise and have friends outside the academic environment. Just a well-rounded person rather than someone who is narrowly focused on a tiny piece of historical research. I think that makes a good PhD student because they are not just focused on their tiny little bit and that is not useful to anyone really.{/outcome>traits>engrossed}{/outcome>traits>intellectual}{/outcome>multidisciplinary}

Thank you very much

No problem.

[END]