

New Variant PhD: The changing nature of the doctorate in the UK

Chris Park^{*}

Lancaster University, UK

Since the early twentieth century the PhD has been the research degree of choice in the UK, but traditional ideas and practices relating to the degree are now being challenged. This paper sketches out the main drivers of change and explores the main challenges confronting doctoral study within the UK. It explains why there is a need for a wholesale revision of assumptions and expectations about what the PhD is, and it charts the genesis and evolution of the PhD in the UK. Key drivers for change include a new emphasis on skills and training, submission rates and quality of supervision, changes in the examination of the thesis, and the introduction of national benchmarking. The paper then explores changes in the PhD as product and as process, and outlines how and why new forms of doctorate are emerging. It asks, rhetorically, whether the changing nature of the doctorate reflects adaptation to changing circumstances in order to survive.

Introduction

The doctorate is the highest academic degree that universities in the UK can award. The traditional and still the most common doctorate in the UK is the Doctor of Philosophy (PhD or DPhil), a research degree awarded for demonstrating ability to carry out academic research and to produce new knowledge. A typical earned (as opposed to honorary) doctorate in the UK involves three years full-time study, or part-time equivalent, much of it involving research at the leading edge of the discipline. To gain the award, a student is typically required to make a substantial original contribution to knowledge, evidenced through a thesis that is examined by academic peers.

Entry standards into the PhD are usually defined by prior academic attainment, most usually in the form of at least a second-class honours degree. Research students benefit from the experience of studying at postgraduate level before they embark on a doctorate, and whilst it is rarely a prerequisite, an increasing number have completed a Masters programme which includes a substantial amount of research training and a

^{*}The Graduate School, Lancaster University, Lancaster LA1 4YB. Email: c.park@lancaster.ac.uk

dissertation or thesis. Funding for doctoral research is usually easier to secure if the student can evidence research ability and potential in the form of an appropriate Masters award.

But the traditional PhD model is now being challenged by a growing diversity of types of doctoral degree, including PhD by publication, Professional Doctorates, and New Route PhD. Traditional expectations of the PhD are being challenged by the new context within which research degrees are now situated and evaluated, including a new emphasis on research training, supervision, submission rates and external definition of the quality and standard of awards.

The objective of this paper is to sketch out the main drivers of change and to explore the main challenges confronting doctoral study within the UK. The paper calls for nothing less than a wholesale revision of assumptions and expectations about what the PhD is, or could conceivably be today, given the new and still emerging context within which it is situated and constructed.

Reflection

In some ways, this process of reflection is already under way. The rhetorical question “what is a PhD?” has already been asked, both directly (e.g. Underwood, 1999; Burnard, 2001) and indirectly (e.g. Hockey, 1991). Collinson (1998) has noted how in Britain in recent years the doctorate has been reconceptualised as a training period for future researchers, rather than a piece of work that changes the course of human knowledge. Based on personal experience, Pole (2000) views the PhD student as a blend of technician and scholar, and Trotter (2003) describes her PhD in social work as a mixture of “researching, studying or jumping through hoops”.

In recent years the fitness for purpose of the doctoral qualification has been widely questioned in the UK, particularly by students and employers. “For some time this single-purpose qualification has no longer fitted the expectations of students and employers. Increasingly, Government, funding bodies and higher education institutions (HEIs) are questioning the nature of the PhD” (Anon., 2002). The Harris Report (1996) argued that it is not always clear to students and employers what it means to have been awarded a particular postgraduate qualification. The Roberts Report (2002) concluded that institutions are not adapting quickly enough to the changing experiences of existing students, the expectations of potential students or the need to prepare students for careers beyond the academy.

Reflection has also been encouraged by the need to reconcile different perceptions of stakeholder benefit, because the doctoral degree – viewed through different lenses – can mean different things. For the student it can be an “academic passport with international reciprocity” (Noble, 1994), a licence to teach at degree level, and an apprenticeship in “proper” academic research (Armstrong, 1994). For the university, PhD students are “the army of research ‘ants’”, as Mitchell (2002) puts it, which helps to keep the research mission moving forward whilst many academics are overloaded with responsibilities. Having research degree awarding powers is a

major sign of the status and academic credibility of a university, and those research universities which award doctorates situate themselves at the pinnacle of the ladder of academic qualifications (Stauffer, 1990). Indeed, the European University Association, which has a membership of nearly 700 universities from all European countries, describes a university as having full powers to award doctoral degrees. For the subject or discipline, the research carried out by doctoral students is vitally important, because many doctoral students are the professors of the future, and most doctoral research gives rise to new knowledge, new interpretations and new explanations. In this sense, research students act as stewards of a discipline (Jackson, 2003) with a responsibility to keep it not just alive, but intellectually vibrant. For the nation, the obvious benefits of an active community of scholars engaged in doctoral level research include enhanced creativity and innovation, and the development of intellectual capital and knowledge transfer, which drive the knowledge economy and are engines of the growth of cultural capital.

Debate about the meaning and value of the doctorate is neither new nor confined to the UK. More than two decades ago, Spriestersbach and Henry (1978) noted that, in the USA, “the standards of PhD education remain unexplained and the appropriateness of existing practices in PhD education largely undemonstrated.” Cude (1987) describes many North American doctoral programmes as inflexible, cumbersome, restrictive and wasteful, and has more recently noted that “as it presently functions in most disciplines, [the doctoral programme] has become a trap for the candidate and a sinkhole for intellectual resources” (Cude, 2001). Beyond North America, the doctoral debate has also surfaced in Australia (Sheely, 1996; Mullins and Kiley, 1998, 2000; Pearson, 1999) and in New Zealand (Sutherland, 1999). In Europe, too, different countries have developed different research training systems leading to doctoral degrees, although Kyvik and Tvede (1998) suggest a trend toward a common international doctorate. Increasing harmonisation of the higher education landscape across Europe, driven by the Bologna Declaration (van der Wende, 2000), is likely to promote further convergence.

Genesis

The British PhD is a relatively new degree. It has its roots in the birth of universities in medieval Europe, in the thirteenth century where the award of a doctorate was a licence to teach, not a recognition of ability or achievement in research. As Simpson (1983) pointed out, “Masters and Doctors degrees were ... the *only* qualification conferred and cannot in any sense be regarded as *higher* degrees. ... The twentieth century research degree had no equivalent in the medieval university”.

It was in Germany that the doctorate came to acquire special status as a research degree, and this development owed much to the vision of Humboldt, who founded the University of Berlin in 1810 as the first modern research university (Wyatt, 1998). The award of a doctorate required successful attendance at seminars, submission of an acceptable thesis, and the passing of a comprehensive oral

examination, and the emphasis was on original and creative research (Goodchild and Miller, 1997). Academic staff were invariably required to hold a PhD degree, engage in research and publish scholarly material. Beginning in 1815, the academic credibility and vitality of the German universities lured bright and ambitious graduate students from Britain and America, who had no suitable opportunities at home (Simpson, 1983). Many of them, armed with German PhDs, returned home and were employed in colleges and universities, slowly helping to raise the profile of academic research in US universities (Schatte, 1977).

From the 1860s onwards the United States began to import from Germany the notions of research universities and doctoral degrees. Yale was the first American university to adopt the PhD degree (1861), and other American universities including Harvard, Michigan and Pennsylvania soon followed. The Yale PhD required students to complete specialised courses, enrol for three years, demonstrate reading knowledge of at least one foreign language, pass a comprehensive examination, submit a dissertation [thesis], and pass an oral examination [viva] (Buchanan and Herubel, 1995). Graduate education spread rapidly through North America between 1870 and 1900, and “by the end of the nineteenth century, the PhD had become the *sine qua non* of American [university] teachers” (Simpson, 1983).

From Germany and the United States the research degree spread to Britain from 1917, and then onwards to most English-speaking countries including Canada and Australia (Schatte, 1977; Simpson, 1983; Nelson, 1993; Noble, 1994). In Britain, higher doctorates (the DSc and DLitt) had been introduced by the Universities of London, Edinburgh, Oxford and Cambridge during the 1870s, but the first lower doctorate (the PhD) was not introduced until 1917, initially by Oxford. Simpson (1983) notes how “within three years the PhD had been established in almost all departments of all British universities and with practically identical regulations.”

Drivers of Change

The traditional PhD, long seen as the premier higher degree in the UK, for many people still remains the research degree of choice. But the context within which it operates is changing, and whilst none of these changes in itself threatens to undermine the PhD, taken together they amount to no less than a sea-change which HEIs are having to adapt to. Failure to adapt quickly and appropriately enough could imperil an institution’s ability to continue to support postgraduate research students, particularly in the face of the new HEFCE definition of quality standards for research training programmes (Metcalf, Quinton and Green, 2002). At risk is continued funding to support higher degree research activities, from funding councils and research councils.

The key drivers of change are a growing emphasis on skills and training, on submission and completion rates, and on quality of supervision, along with changes in the examination of the thesis, and the introduction of benchmarking.

Skills and Training

The skills and training agenda at PhD level is not new. In the mid-1990s the Dearing Report (1996) recommended enhanced provision of skills training and research support, and the Harris Report (1996) located research training logically within academic departments and faculties, where the research-active staff are based. More recently, the Roberts Report (2002) argued that the traditional focus in PhD research on production of the thesis has led to failure to recognise the need to acquire a wide range of skills. Frame and Allen (2002) have called for a more flexible approach to research training within PhD programmes, and the recent HEFCE review of PGR training programmes (Metcalf, Quinton and Green, 2002) underlines the commitment to training in transferable skills by funders.

Undertaking a PhD has traditionally been viewed as a form of academic apprenticeship, and training inevitably has a part to play in producing the well-rounded academic practitioner. As the British Psychological Society (no date) put it, “essentially, a PhD is a training and apprenticeship in research, a period of learning the tricks of the trade, of becoming a professional, and of establishing yourself as a peer among experts.” According to the UK Council for Graduate Education (1997) doctorateness involves “mastery of the subject; mastery of analytical breadth (where methods, techniques, contexts and data are concerned) and mastery of depth (the contribution itself, judged to be competent and original and of high quality).” Mullins and Kiley (2000) insist that, in the apprenticeship model, “a PhD is a period during which, amongst other things, a student learns the art and the science of research, the ethics of research, the intellectual rigour required of a researcher, how to frame research questions and to pursue them and mould them, and to complete a piece of original research.”

In the UK, “the research element of the doctorate remains the distinctive characteristic and essential cornerstone” of the PhD (UK Council for Graduate Education, 1996a), although much discussion has focussed on how much research training the PhD should provide (Becher, Henkel and Kogan, 1994; Burgess, 1997), particularly training in research methods (Collinson, 1998) and research skills (Delamont, Atkinson and Parry, 1997; UK Council for Graduate Education, 1996a, 1996b, 1998). Given that, “postgraduate research education is the principal vehicle for training teachers in HE” (Harris Report, 1996) there have also been calls for better training in teaching (UK Council for Graduate Education, 1999).

What is new is the demand from funding bodies and potential employers that training within PhD programmes should be more structured and better co-ordinated, that it be broadened to embrace key or transferable skills as well as research skills, be compulsory rather than optional, and be more sensitive to issues of employability that extend beyond simply creating new academics. Although a PhD is still the main entry qualification for an academic post (Henkel and Kogan, 1993), limited career opportunities within universities mean that the PhD must also prepare the student for other kinds of employment (Harvey, 2000; UK Council for Graduate Education 1996a, 1998). The evidence suggests that such diversification is occurring

in a number of European countries as well as in the UK (Huisman, de Weert and Bartelse, 2002).

Submission and Completion Rates

In the UK, submission rates have not (yet) given rise to the “hidden crisis in HE” that Lovitts and Nelson (2000) claim exists in the United States, where half of the graduate students leave without completing their degrees. Of course, academic cultures and contexts differ between the UK and the USA, but recent years have witnessed growing interest in variations in PhD submission rates within and between HEIs in the UK, even though comparative studies are constrained by the lack of published data on submission and completion rates. What the North American literature calls “time-to-completion” varies between countries within Europe, by a matter of up to 7 years, although most students spend the equivalent of between 3 and 3.5 years on the research itself and the rest on writing up (McQueen, 1994).

There is an inevitable tension between quality of research and submission and completion rates, because the objective of achieving timely submission might at times compromise the objective of high quality research. Many supervisors feel uncomfortable with the new imperative to meet threshold submission rates, particularly when they are set as high as 70 per cent submission within four years (full-time). It is easy to view thresholds like this as a managerialist approach to academic quality, that puts undue emphasis on performance indicators of “efficiency” that are open to misinterpretation and misrepresentation. These concerns are very real, because funding council and research councils are planning to use submission rates as a proxy for the quality and effectiveness of research training and supervision, despite abundant evidence that submission rates reflect the interplay of multiple factors.

Perhaps inevitably, submission rates are affected by different factors in different countries, and by multiple factors within any given country. Amongst a wealth of North American studies, for example, Pauley, Cunningham and Toth (1999) identified six factors positively related to doctoral degree completion – student financial support, familial support, peer support, faculty support, chairperson support and student motivation. In Australia, Dinham and Scott (1999) discovered that doctorate completion rates can be significantly affected by financial difficulties, family lifestyle problems, cultural difficulties and isolation, and problems dealing with university administration. Empirical research on reasons for non-submission or late submission in the UK has to date been somewhat limited. Rudd (1986) discovered that students drop out for many reasons, including individual characteristics, personal problems and accidents, problems inherent in research projects and poor supervision. Booth and Satchell (1996) showed that doctoral completion rates vary with discipline (rates were highest in sciences), student ability (measured by first degree type), and fee status (rates were higher for full-time

students, pro-rata), with funding having an insignificant positive impact on completion rate. Wright and Cochrane (2000) confirm the importance of discipline, with science students much more likely than non-science students to complete their theses, on time or even at all.

Quality of Supervision

One hallmark of the new culture of doctoral research in the UK is a growing emphasis on quality of supervision, which can have significant impacts particularly on the quality of the student experience, time to submission, and likelihood of eventual completion and graduation. This area, traditionally viewed as a secret garden or an activity that takes place behind closed doors between consenting adults, is now expected to be more transparent, more consistent and more appropriate to contemporary notions of what the PhD is and how it should be undertaken. The traditional practice was to regard successful completion of a PhD as an apprenticeship that then bestows eligibility to supervise others. Institutional cultures and practices in this area vary (Delamont, Atkinson and Parry, 1998), but the funding councils and the research councils increasingly favour proper selection, induction and training of supervisors.

Effective supervision relies heavily on the nature of the relationship between student and supervisor, not just in terms of academic match and experience but also in terms of style of supervision, evidenced through such qualities as flexibility and sensitivity (Hockey, 1996a). Gurr (2001) stresses the importance of a constructive alignment between supervisory style and student development, orientated around the fostering of “competent autonomy” within the student. One approach to strengthening the supervisor–student relationship is to develop and use a negotiated written contract (Hockey, 1996b), although it is difficult to use structural measures like this to deal effectively with issues such as lack of student motivation.

Critical to effective supervision is the supervisor’s understanding both of their role and of how they can best help the student to achieve their full potential. This is informed by a range of factors, including the various intellectual, functional and self-esteem motives of the supervisor (Hockey, 1996c). Supervisors of doctoral students require many of the skills of the workplace manager (Vilkinas, 2002), although the roles are not identical.

Effectiveness also reflects the student experience of the quality and nature of research supervision, judged in the light of their expectations. Although it is not easy to capture experience or expectations in unambiguous ways (Marsh, Rowe and Martin, 2002), it is clear that experience often falls short of expectations, in both personal indirect research-related help and direct research-related help (Haksever and Manisali, 2000). Appropriate training of PhD supervisors might help to address this shortfall (Pole et al., 1997), but it must be accompanied by efforts to inform student expectations and make them more realistic.

Examining the Doctorate

From the student's perspective, one of the most important ingredients of the doctoral experience is the examination process, which determines whether or not the degree is awarded. There are two key dimensions to this critical step – the *process* (how the work is examined) and the *focus* (precisely what is examined).

Traditionally in the UK the thesis is examined in an oral examination (the *viva voce*) by academic peers who hold doctorates themselves, are research-active academic practitioners and can assess expert knowledge. The viva usually involves at least one examiner internal to the institution and one external examiner. The doctoral degree is not graded; a candidate may pass, or may pass after making corrections and revisions, or may be failed (possibly with a recommendation to re-submit for a lesser award).

The examination process varies between universities across the UK. Tinkler and Jackson (2000) found that “although there is a large degree of inter-institutional consistency regarding key criteria for the PhD award, close inspection of institutional policy suggests that the PhD examination is in fact conceptualized and operationalized in diverse ways”. Jackson and Tinkler (2001) also found no consensus regarding the role of the viva in the PhD examination process between different universities in the UK, and “inconsistencies and contradictions concerning its purposes, both at the policy and practice levels”. Because of the authority and responsibility delegated by the awarding university to the examiners engaged in the viva, and the lack of absolute standards against which to judge each individual thesis and its writer, the doctoral examination can be viewed as a socially constructed encounter rather than a fully objective and impartial process (Park, 2003).

Recent years have witnessed a change in the focus of doctoral examinations, informed by the emerging culture of UK higher education and its emphasis on quality assurance, standards, benchmarks and performance indicators (Morley, Leonard and David, 2002). “Traditionally the function of the PhD has been to train future academic workers. The research content, not the training of the researcher, has been its main outcome” (Anon., 2002). But this is changing in the UK, albeit slowly, with attention now also being paid to testing of the process, looking for evidence of research training and the development of the autonomous academic researcher but with a broader skills-base for the majority of doctoral graduates whose careers will be outside academia.

In this sense the UK is simply playing catch-up with other countries, such as the USA and Australia. A decade ago the University of New England told its doctoral examiners that “the primary purpose of the candidature is advanced training in research methods. It is therefore important that the skill, competence and ability of the candidate be fairly assessed irrespective of the finality of the research results” (Nelson, 1993). The University of Melbourne (no date) insists that one of the key criteria for defining a successful doctoral thesis is that “it is a careful, rigorous and sustained piece of work demonstrating that a research ‘apprenticeship’ is complete and the holder is admitted to the community of scholars in the discipline.”

This new way of framing doctoral study – as a combination of training the person and writing the thesis – is captured in the level descriptor published by the Quality Assurance Agency (QAA, 2001), which states that “Doctorates are awarded for the creation and interpretation of knowledge, which extends the forefront of a discipline, usually through original research. Holders of doctorates will be able to conceptualise, design and implement projects for the generation of significant new knowledge and/or understanding. Holders of doctorates will have the qualities needed for employment requiring the ability to make informed judgements on complex issues in specialist fields, and innovation in tackling and solving problems.”

Benchmarking

Traditionally in the UK there was no national definition of the quality or standard of a doctoral degree, and external examiners carried much of the responsibility for ensuring parity of quality between institutions. From a quality assurance perspective, to protect the academic credibility and reputation of individual institutions, and to make the whole process more transparent, such an informal approach poses some major challenges. Little wonder, therefore, that the Dearing Report (1996) argued the need to provide clarification of the titles, levels and aims of different programmes, and for a framework of postgraduate awards to provide a clear pathway of progression with different levels reflecting different levels of attainment. This gave rise to the Framework for Higher Education Qualifications (FHEQ) (QAA, 2001) which maps out what a student with a doctoral level degree should be capable of, defines the standards expected of a doctoral degree, and provides a national benchmark against which to judge individual PhD programmes and schemes.

The FHEQ sits alongside other sector-wide vehicles of quality assurance that HEIs will be expected to comply with, in spirit if not in letter, including the QAA (2000) Code of Practice for Postgraduate Research Programmes, and the forthcoming HEFCE framework for postgraduate research training programmes (Metcalf, Quinton and Green, 2002). Taken together, these instruments represent a major sea-change in the context of doctoral study in the UK, and one to which each individual institution must adapt (Shaw and Green, 2002). The rationale of enhancing quality and improving accountability is broadly welcomed (Stanley and Patrick, 1998), although not all observers are convinced that the end justifies the means. Critics of this new culture bemoan the advent of creeping managerialism, the imposition of external standards and requirements, and the attendant rise in bureaucracy. Thorne and Francis (2001) suggest that the new vehicles fail to recognise some important qualitative distinctions between different types of doctoral programme.

PhD as Product

It is useful to distinguish between the PhD as a product, and the PhD as a process.

The main tangible product is the thesis that each student must present, which describes a substantial piece of original research and is examined in the viva. Each HEI has its own regulations that define what a PhD is and spell out expectations over such things as style, format and content. Alternative formats of thesis are permissible in some disciplines, such as the creative arts, where what is examined may take the form of performance and/or a portfolio of creative work accompanied by a narrative thesis that contextualises and evaluates the work.

The traditional notion of the *magnus opus* – a piece of research that could have a lasting impact on a discipline – has over the last decade or so been replaced by a more pragmatic notion of a manageable piece of work, of a scope and size that a student could reasonably expect to complete within three years. Scale is important in two ways: in terms of the length of time the student works on the research, and the size of the thesis describing that research. Scoping is becoming more important than it was in the past, and is increasingly codified in institutional regulations. A doctoral thesis at York University (no date), for example, is defined as “a piece of work which a capable, well-qualified and diligent student, who is properly supported and supervised, can complete within three years”. Mullins and Kiley (2002) remind examiners that they are evaluating a “PhD not a Nobel Prize”, so they must keep in mind the timescale of the research, the constraints under which the student had to operate, and the normal disciplinary expectations about quantity and quality of work under scrutiny. Typical word-length can vary between disciplines, but between 80,000 and 100,000 words is a typical maximum allowed under university regulations. Few institutions allow theses to be longer than 100,000 words without special prior approval.

Typically, a PhD thesis is expected to embody independent research carried out by the author, and through that to demonstrate that the student has located the research within a discipline or an interdisciplinary context, has shown an ability to carry out independent research as an autonomous practitioner, and has made a substantial contribution to knowledge and advanced understanding. It is generally agreed that a doctorate should involve extending knowledge, but the two most difficult criteria to legislate for, and to benchmark in any meaningful way, are originality and contribution to knowledge.

Originality can be a thorny problem, because it means different things in different disciplines, there is no absolute threshold that can be applied, and constraints of time and funding must also be taken into account. Moreover, originality can be displayed in a number of ways – including reinterpreting an existing theory or data, “applying an existing position, theory or methodology to a new range of data, ... finding new ways of analysing and/or theorising a known body of information, and ... [proposing] a new method and/or theory, and applying it to a new range of data or information.” (Sussex, no date).

Many HEIs in the UK have regulations that require a PhD thesis to contain an original contribution to knowledge or understanding. As Mullins and Kiley (2000) stress, “a PhD thesis ... should be, above all, seen to be a stage in the process of

developing new knowledge in a particular field". Thus, for example, Cambridge University (no date) expects that "a dissertation for the PhD must represent 'a significant contribution to learning', for example through the discovery of new knowledge, the connection of previously unrelated facts, the development of a new theory, or the revision of older views, and must take account of previously published work on the subject." This traditional notion of a PhD almost inevitably privileges the creation of new knowledge over the application, extension, interpretation or questioning of existing knowledge.

PhD as Process

An emerging theme in doctoral discourse in the UK is the switch from content to competence, driven by a shift in emphasis towards the PhD experience for the student, and away from simply the outcome (award of the degree) or the product (the thesis). The ultimate aim is to produce the autonomous scholar (Johnson, Lee and Green, 2000), even though a majority of doctoral students end up in non-academic careers.

In a North American context, Golde and Dore (2001) note the lack of understanding with which many students approach graduate study. They observe that "many students do not understand what doctoral study entails, how the process works, and how to navigate it effectively. There is a mismatch among the purpose of doctoral education, the aspirations of the students, and the realities of their careers within and outside academia" (Golde and Dore, 2001). One response in the UK to this desire to make the process more transparent has been the growth of a cottage industry (e.g. Cryer, 1996; Phillips and Pugh, 2000) in writing guidebooks to help students to better understand what the experience of being a research student involves.

A key component of the student experience of doctoral study is the transition into a new culture and context within higher education, which involves what Haden (1993) describes as "taking the PhD plunge". Many HEIs run induction programmes designed to help the new doctoral student to adjust to their new status as novice researchers, which involves intellectual solitariness, professional and social isolation, new work organisation requirements, anxiety concerning time and productivity, intellectual life, and supervision (Hockey, 1994). Warrington (1997) and Rhedding-Jones (1997) confirm how personally challenging this transition experience can be.

Published insights of the doctoral student experience come mainly from North America, where Haden (1993) suggests that "to survive in today's graduate school, a student must be technically literate, stay organized, choose suitable living arrangements, keep fit, and maintain close ties with family and friends." The particular challenges faced by minority groups such as latinos (Gonzales et al., 2002), blacks and native Americans (Roach, 2001), and the influence of gender and gendered perspectives (Cao, 2001), can make the process even more problematic for the individual student.

Diversity of Provision – Emergence of New Forms of Doctorate

Since it first arrived in the UK in the early twentieth century, the PhD has been the research degree of choice. Whilst its supremacy is not in itself under attack, the emergence of new forms of doctorate within the last two decades has diversified the portfolio of doctoral provision, allowed more niche-marketing, and been a response to changing needs and opportunities. Alongside the traditional PhD, many UK HEIs now offer one or more PhDs by publication (rather than by thesis) (Wilson, 2002), practice-based doctorates (for example in the creative and performing arts), professional doctorates (in a variety of forms and formats), and more recently the New Route PhD.

The emergence of this diversity is a response to multiple drivers, particularly the move from content to competence, although as Hockey (1991) points out, the debate over whether a doctoral degree should be viewed as education or training is neither new nor confined to the UK. In Engineering, for example, the development of competence-based doctorates has been informed by an appreciation of the need to adequately prepare students to become experts in the new industrial engineering and development culture (Owens, 1992).

Of the new variants on the traditional PhD, professional and work-based doctorates have up to now commanded most attention, because the number on offer is growing at a relatively fast rate. Maxwell (2003) traces the evolution from first to second generation professional doctorate, and Bourner, Bowden and Laing (2001) identified 20 distinctive features common to professional doctorates in English universities. Pearson (1996) sees the professional doctorate “as a form of professional education in which students are introduced to the professional practice of research and scholarship, with the supervisor responsible for assisting students to become independent practitioners”. Key ingredients in this metamorphosis include reflection and planning by the student (Doncaster and Thorne, 2000), appropriate work experience for and the development of personal capabilities in the student (Doncaster and Lester, 2002), and changing roles and responsibilities for the research supervisor (Evans, 1997).

Professional doctorates take many different forms, which reflect the different needs of the subject areas involved. The Doctorate in Education (DEd or EdD) – one of the best developed of the applied or practitioner professional degrees in the USA (Townsend and Wiese, 1991) and Australia (Lockhart and Stablein, 2002) – arrived in the UK in the early 1990s and has since grown steadily. This development has not been without controversy, though, because there is little evidence that it benefits educational practice at large (Townsend, 2002), and many research universities have remained reluctant to offer the degree (Osguthorpe and Wong, 1993). More fundamentally, Gregory (1995) has questioned the need to differentiate between the Doctorate in Education and the PhD degree in Britain, and the misassumption that doctoral study is primarily academic apprenticeship.

Beyond the Doctorate in Education, the Doctorate in Clinical Psychology (DClinPsy) (Hatton, 1994) and the Doctorate in Engineering (DEng) (Owens

1992) are now well established in the UK, and professional doctorates are starting to appear in other subjects. The Doctorate in Business Administration (DBA) remains new in the UK but is on the increase, in response to dissatisfaction in the business sector with the traditional PhD (Bourner, Ruggeri-Stevens and Bareham, 2000). A number of US institutions have developed Doctorates in Public Administration (DPA) (Sherwood, 1996; Brewer et al., 1999), although the need for a degree distinct from the PhD is contested (Hambrick, 1997) and the DPA has yet to appear in the UK. Another growth area in North America is doctoral nursing education, and whilst some universities offer the Doctorate in Nursing Studies (DNS) (Downs, 1989; Anderson, 2000), the field is still its infancy and a consensus has yet to emerge about degree names or programme definition (Minnick and Halstead, 2002).

The New Route PhD (which some universities have chosen to call an Integrated PhD) was first introduced in the UK at the start of the new millennium, initially as a pilot project in ten universities. The pilot proved successful, and the brand and format has since been made available to other universities across the sector. The aim of this new model is to create a UK doctorate that has more appeal to international students, particularly those who might otherwise find it attractive to study for a PhD in North America. The New Route PhD is modelled on the North American doctoral model, with taught elements (including research training and advanced disciplinary study) and a smaller thesis, but it is shorter (four years, the first of which is largely dedicated to taking taught courses) and therefore cheaper, but no less rigorous intellectually.

The relatively slow development of new forms of doctorate in the UK has been partly a reaction to mixed messages about the suitability of some of the variants being explored both in and beyond the UK. In Australia, for example, Sheely (1996) notes that “there has been considerable debate about the validity of alternate PhD programs and suggestions that both the quality of work submitted and the quality of the experience for the candidate would be less than that of a ‘real’ PhD.” In Canada Allen, Smyth and Wahlstrom (2002) outline some historical, political, economic and social reasons for favouring a reinvention of the traditional PhD to developing professional doctorates. In the UK, Winter, Griffiths and Green (2000) found that many examiners of practice-based doctoral theses in a range of disciplines commented on a lack of intellectual grasp, coherence, engagement with the literature, originality, and generalisability, along with methodological weakness and poor presentation.

Slow development also reflects an element of uncertainty in the UK research degree market, which now has a variety of types of doctoral award on offer, but lacks clarity and coherence (Bourner, Bowden and Laing, 1999). Hoddell, Street and Wildblood (2002) anticipate greater convergence in this marketplace in the future, as the different models of a doctorate embrace the need to meet the requirements of grade descriptors in the Framework for Higher Education Qualifications.

Conclusions

This paper outlines a number of important ways in which the doctoral degree in the UK is changing, in response to factors such as changing market demand, increased external scrutiny of institutions, the arrival of national benchmarking of quality and standards, and the emergence and growth of new forms of doctoral degrees. The PhD, the traditional research degree and still the most common and most popular one, took hold in the UK at the start of the twentieth century, and for much of the time since then it has been the only earned higher research degree on offer.

Changes are afoot within the PhD, both in terms of the product and the process, which are requiring adjustments in the expectations of all of the major stakeholders – particularly the students, supervisors and examiners. Drivers of change include a growing emphasis on skills and training, on submission and completion rates, on quality of supervision, and changes in the examination of doctoral research. The sea-change that is already under way looks set to continue for some time yet, as the full impact and consequences of these changes continue to unfold and become apparent. The future of the PhD degree itself is not at risk, but it will face increasing competition from the many new forms of doctorate that are becoming available.

Two analogues spring to mind that frame this period of rapid change and the need to adapt to changing circumstances in order to survive. Within evolutionary biology, the model of punctuated equilibrium is based on long periods of relative stability punctuated by periodic bursts of rapid change, adjustment and adaptation (Gould and Eldredge, 1977). A second analogue is Kuhn's (1962) model of scientific paradigms, built on the notion of long periods of stability and continuity of paradigm, interrupted and challenged by phases of rapid change and paradigm shift, usually driven by the need to respond to external factors. It is contended that, in the context of the PhD, this adaptation is occurring in two forms or variants – the existing PhD is changing shape, and new types of doctorate are appearing as intermediate or transitional forms.

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