The changing landscape of doctoral education in the UK

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ABSTRACT

As elsewhere across the globe, for the past two decades doctoral education in the UK has been in the throes of change. This article seeks to describe and analyse developments in 1) the national framework for doctoral education, 2) institutional structures, 3) doctoral programmes, 4) doctoral candidacy, 5) doctoral supervision and 6) doctoral examination. Multiple sources of evidence, including official documentation and the results of investigations of the public-facing websites of the 150 institutions providing doctoral programmes, are used. The conclusion shows that these changes have been far-reaching, particularly for supervisors, and a call is made for greater recognition of their contributions to doctoral education.

Introduction

In 2020–21, there were 150 institutions in the UK offering doctoral programmes; in that academic year, 104,965 students were enrolled in such programmes and 21,000 doctoral candidates graduated (Higher Education Statistics Agency, 2022). This made the UK the fourth-largest producer of doctoral graduates across the globe (Taylor, 2021).

In the present article, we seek to describe the changing landscape of doctoral education in the UK over the past two decades or so. In particular, we look at developments in 1) the national framework for doctoral education, 2) institutional structures, 3) doctoral programmes, 4) doctoral candidacy, 5) doctoral supervision and 6) doctoral examination.

The national framework for doctoral education

There are two main components of the national framework, one relating to the standards of doctoral awards and the other to the quality of doctoral degree programmes.

The standards of doctoral awards

From the initial adoption of the research doctorate in the UK in 1917, it was left up to individual universities to define the standards of their doctoral awards. However, in the

early and mid-1960s, new higher education institutions – principally the polytechnics – were created, but they were only initially allowed to award external degrees of the Council for National Academic Awards (CNAA). The latter drew up a common definition (Council for National Academic Awards, 1983) which was then applied consistently across these institutions.

In 1992, the polytechnics were allowed to apply to become universities, and all did. This led to a situation where, in what were now called post-1992 universities, definitions were effectively standardised on the CNAA model, while in the pre-1992 institutions, there was considerable variability (Denicolo, 2003; Simpson, 2009; Tinkler & Jackson, 2004).

It was in order to address the issue of variability that in 2001 the then recently created Quality Assurance Agency (QAA) introduced a generic descriptor for the standards of the doctorate as part of the national Frameworks for Higher Education Qualifications (FHEQ), which was subsequently updated (Quality Assurance Agency, 2014).

In order to determine the commonality of criteria, Taylor (2022) undertook an analysis of the statements of standards of the doctorate in the 150 institutions in the UK providing doctoral programmes. Of these, 19 did not have awarding powers of their own and hence relied on standards defined by others, leaving 131 with their own definitions. Of these, 127 (98%) shared such information publicly. Of these, 45 (35%) replicated the QAA criteria verbatim in defining the doctorate; a further 6 (5%) incorporated the criteria in slightly reworded form; 48 (38%) used alternative wording but covered these criteria; and the remaining 28 (22%) had definitions which mainly matched the QAA definition but were different in one crucial respect, namely requiring that the thesis should contain elements which were, in principle, worthy of publication.

This would then suggest that there has been significant movement towards a common definition of the doctorate in the UK, although that process is not complete.

The quality of doctoral programmes

In the same way as there were variations in definitions of the doctorate, there were also considerable variations in practice between the pre-1992 institutions which previously had free rein and the post-1992 ones which were subject to the common rules and regulations of the CNAA. In order to calibrate these divergences, following consultations with the sector, the Quality Assurance Agency (1999) published a Code of Practice for the assurance of academic quality and standards in research degree programmes.

This, and subsequent editions (Quality Assurance Agency, 2004, 2014, 2018) were comprehensive in scope covering the research environment, promotional information, selection and admission of students, their enrolment and registration, student information and induction, procedures for the approval of research project, skills training, supervision including the use of supervisory teams, assessment, feedback, complaints and appeals and the evaluation of provision. The Code was used as a benchmark for regular quality audits of institutions by the QAA involving visits and leading to published reports on the quality and standards of provision including that of research degrees.

In order to ensure that their policies and procedures were aligned to this benchmark, institutions either established their own internal codes of practice based on the QAA Code or incorporated the latter into their policies, rules, and regulations. So, and within

a relatively short space of time, research degrees became heavily regulated, internally by institutions and externally by the QAA.

The impact of this can be seen in that, of the 150 institutions with doctoral programmes in 2022, 80 (53%) had their own codes of practice based on the QAA one (in many cases verbatim) while in the remaining 70 (37%) the latter was embodied in institutional rules and regulations.

Since 2018, while compliance with the QAA Code and external monitoring have remained mandatory in Northern Ireland, Wales and Scotland, in England compliance is now advisory and there is no external regulation. The impact of this, if any, remains to be seen.

Institutions

A few years ago Park (2007, p. 29) memorably described doctoral education in the UK as a 'secret garden' in which 'student and supervisor worked closely together without a great deal of external scrutiny or accountability' on the part of academic departments or institutions or research funders. However, in the late 1980s there were moves in some institutions to put graduate education onto a formal footing by the creation of graduate schools, along the lines of those in the United States. The drivers for this included variously the need for closer institutional monitoring and scrutiny of doctoral education to improve completion rates and shorten completion times and the need to improve the quality of the student experience (UK Council for Graduate Education UK Council for Graduate Education, 1995). In 1991, the first graduate school was established at the University of Warwick and since then there has been a steady growth in the numbers of institutions establishing specialist structures for graduate/doctoral education (see McGloin & Wynne, 2015, 2022; UK Council for Graduate Education, 1995, 1998).

A review of the 150 institutions providing doctoral programmes in the UK in 2022 identified 95 (63%) which had such structures. Among these, there was some variation in the nomenclature used: the most popular was 'graduate school' (38% of cases) followed by 'doctoral college' (33%), 'doctoral school' (12%), 'doctoral academy' (6%) with a plethora of other names making up the remaining 11%.

So it would seem that overall just under two-thirds of the institutions providing doctoral programmes had established specific institutional structures dedicated to graduate or doctoral education.

Programmes

For most of the 20th century, by far the most common form of doctorate in the UK was the 'monograph' which essentially involved the student in undertaking a supervised research project over a period of three or four years and producing a thesis usually of 80–100,000 words.

However, from the 1980s onwards, this format was criticised on the grounds of fitness of purpose, and effectiveness (see Park, 2005, 2007) leading to the development of new variants including:

Structured PhDs

The structured PhD involves students in undertaking initial taught coursework in their subject for up to a year, and then spending a further three years or so undertaking a research project. By 2020, there were structured doctoral programmes in virtually all 150 institutions.

Professional doctorates

Professional doctorates normally involve an assessed taught component followed by a research project based in the workplace or on professional practice which may be written up as a thesis (shorter than that for a PhD) or as a portfolio. In the UK, the first professional doctorate was introduced in 1989 and by 1998 there were 109 different programmes in England rising to 308 in 2009 (Mellors-Bourne et al., 2016, p. 13). By 2022, the number in the 150 institutions included in the present survey (which included Northern Ireland, Scotland and Wales) was 244.

Practice-led doctorates

A relative newcomer to the portfolio of doctorates is 'practice-led' doctorates. These involve the production of creative works, e.g. dance, music, sculpture, paintings, creative writing, as research outputs but are mostly mediated through an accompanying text or exegesis (see Grennan, 2015; Wisker & Robinson, 2015). By 2022, 90 of the 150 institutions in the UK (60%) offered practice-led programmes.

Doctorates by publication

Doctorates by publication, which have long been common in some parts of Europe, for example Gemany, Norway and Sweden, were only introduced in the UK in 1966 (Peacock, 2017). According to Powell (2004), the number of institutions awarding these degrees reached 31 in 1996 and 49 in 2004; by 2022, 92 (62%) of the 150 institutions surveyed had doctorates by publication.

Interdisciplinary doctorates

Doctoral studies were traditionally conducted within single disciplines, but many research projects require the application of two or more disciplines to solve problems (Kiley & Halliday, 2019). While there are no historical data, it may be noted that, in 2022, among the 150 institutions in the UK, 59 (39%) separately flagged interdisciplinary doctoral programmes in their web promotion materials.

Collaborative doctorates with academic partners

Traditionally, doctorates were undertaken within single institutions, but one of the major developments of the 21st century has been the development of doctoral programmes between two or more higher education institutions. In the UK, this is known as

collaborative provision, and institutions are expected to keep a register of all such programmes, including doctoral ones. Of the 150 institutions in the present survey, 32 had registers in the public domain which listed doctoral programmes. In all, there were 147 registered collaborative doctoral programmes, and of these, 109 (74%) were with partners overseas. Further research would be required to see how far this is typical of the sector.

Collaborative doctorates with partners outside higher education

As well as partnering with other higher education institutions, over the past two decades, there has been increasing involvement in doctoral programmes with non-academic partners in the private and public and not-for-profit sectors. In the UK, this began in the 1990s with the establishment of the Doctorate in Engineering degree and of Collaborative Awards in Science and Technology. Since then, such collaborations have been massively expanded with funding from the research councils (see below). Additionally, 49 of the 150 universities in the survey (33%) reported that they had established doctoral programmes independently with external partners.

Hybrid doctorates

Finally, there are doctoral programmes which combined several elements (being structured, interdisciplinary, and collaborative with partners within and/or outside higher education). Within the UK, these hybrid forms have notably been embodied in the programmes for doctoral training established by the research funding councils. The first of these was established by the Engineering and Physical Sciences Research Council in 2008 when it created 45 Centres for Doctoral Training. These proved highly successful, and the precedent was quickly followed by the other research councils, albeit with different variants including Doctoral Training Partnerships and Collaborative Doctoral Partnerships (see Taylor & Humphrey, 2021). In 2022, 102 (69%) of the 150 institutions included in the survey reported involvement in these hybrid doctoral programmes.

Candidates

Over this time period, the key themes for doctoral candidates have included:

Massification

Since the start of the century, there has been a considerable increase in the numbers of doctoral candidates in the UK: from 63,305 in 2000–1 to 104,965 in 2020–21 (Higher Education Statistics Agency, 2002, 2022). This massification has also been reflected in the numbers of doctoral awards, which over the same period increased from 14,150 to 21,000 (op. cit.)

Domestic diversification

Massification has also meant increased diversification of the candidate population as previously underrepresented groups have been drawn into doctoral education. Unfortunately, for most of the past two decades, HESA, the body responsible for higher education statistics, has only published data on the composition of all candidates for research degrees (including Master's by research) and not just those studying for doctoral awards. But it would be surprising if there was a very large divergence between these populations in terms of composition, so the data below have at least an indicative value.

Gender

Over the two decades, there has been a small increase in the proportion of female candidates from 45.3% in 2000–2001 to 49.6% in 2020–21 (op. cit.). This is near equality, but of course significantly below the comparable figure for the undergraduate population where women are in a clear majority.

Ethnicity

There has been a marked change in the proportions of candidates from Black and Minority Ethnicities (BAME) UK-domiciled candidates form 10.9% of the candidate population in 2000–01 to 19.8% in 2020–21 (Higher Education Statistics Agency, 2002, 2022), although the participation rate is still below that in the undergraduate population and fewer BAME candidates receive financial backing or complete awards (Quality Assurance Agency, 2021a).

Disability

There has been a clear increase in the numbers of candidates recorded with a known disability in recent years, from 6.7% in 2013–14 (the first point at which data is available) to 12.1% in 2020–21 (Higher Education Statistics Agency, 2015, 2022). Whether this is due to genuine change in the composition of the candidate population as opposed to candidates being more willing to declare a disability is difficult to assess. Recent data (Neeves, 2022) suggest that candidates with disabilities are significantly more dissatisfied with their experiences than others.

Age

There seems to be a changing profile with 49.5% of candidates being under 29 in 2013–14 (the first point at which data is available) compared to 59.5% in 2020–2021 (Higher Education Statistics Agency, 2015, 2022).

International diversification

As Simpson (2009) has shown, there has always been a presence of international doctoral candidates in the UK throughout the 20th century but the proportion rose significantly in

the first two decades of the 20th century from 17.4% in 2000–2001 to 40.9% in 2020–21 (Higher Education Statistics Agency, 2002, 2022).

Changes in modes of study

In addition to these changes in social composition, there were also changes in modes of study. Whereas in 2000–2001, 35.5% of candidates were studying part-time, by 2020–21 the proportion had fallen to 23.5% (Higher Education Statistics Agency, 2002, 2022.

Wellbeing and mental health

Traditionally, it has been assumed that, because doctoral candidates are adults, they should be responsible for their own wellbeing and mental health. But recent studies in the UK (see Guthrie et al., 2017; Metcalfe et al., 2018) have found that doctoral candidates suffer disproportionately from low levels of well-being and from mental distress (depression and anxiety) and mental health issues (clinically proven depression and anxiety as well as more severe illnesses including bi-polar and psychosis). This has led to universities developing more supportive provisions focusing on sustaining positive mental health.

Changes in employment patterns

In the 20th century, the doctorate was seen usually as a route into academia. But this seemingly began to change in the early 21st century and the pioneering study of the first destinations of doctoral graduates (UK Grad, 2004) found that, six months after graduation, just under half were working in research and/or teaching in higher education. A follow-up study (Vitae, 2010) found that the proportion working in higher education three years after graduation had declined to 40%, while a more recent study by Hancock (2021) based on 2017 data found that, three and half years after graduation, only 30% were in academic careers. So the doctorate is now fulfilling the demands of a wide range of careers outside academia, particularly in providing skilled researchers for the knowledge economy.

Covid

The onset of the pandemic in March 2020 led to the closure of universities and libraries and a moratorium on undertaking many research activities. Numerous studies (Burridge et al., 2020; Byrom & Metcalfe, 2020; Goldstone & Zhang, 2021; Jackman et al., 2021; Lambrechts & Smith, 2020) documented the dramatic impact upon research students including: inability to progress their research projects and meet completion deadlines; having to work from home often in environments not conducive to study; absence of face-to-face contacts with supervisors, research groups and peers; social isolation from family, friends and colleagues; mental health difficulties because of stress and anxiety; physical poor health because of the virus itself and restrictions on exercise; and financial concerns because they would be unable to complete their research within the funded period. Moreover, these studies provided evidence that these issues and others were impacting disproportionately upon groups of students, especially those with caring responsibilities or with disabilities. The evidence of these studies and others such as the Advance HE's Research Student Experience Survey data (see Neeves, 2022; Pitkin, 2020,

2021) suggest that, by and large, students were satisfied with the responses of institutions and supervisors in supporting them to meet the challenges posed by the pandemic.

Doctoral supervision

The changes described above have had implications for doctoral supervision. While historical data is lacking, the UK Council for Graduate Education (2021c) recently conducted the first UK-wide survey of research supervisors which gives some indication of the scale of change in many fields.

Regulation

Over the past two decades or so, the combination of the introduction of external and internal codes of practice for research degrees in general, and supervision and the institutionalisation of doctoral education through graduate schools in particular, have made supervision a heavily regulated part of academic practice. Supervisors are now expected to be aware of the requirements of codes of practice and to adhere to them, and to know of and abide by the rules and regulations covering the governance of doctoral education. All of this has considerably increased the administrative burden of doctoral supervision; sofor example, one respondent to the UK Council for Graduate Education study (2021a, p. 27) notes that

> The massive administrative pressure makes it difficult to just have the time in the week to block out to be with my candidate when there's just so much poking around from all corners of the university needing things to be done . . .

Team supervision

One component of regulation which has major implications for supervisory practice is the introduction of team supervision. This had always been a formal requirement in the pre-1992 universities originally regulated by the CNAA, but not in the post-1992 institutions where at the start of the century the single supervisor model remained the norm. But successive editions of the Code of Practice (2004, 2014, 2018) required that, while all candidates should have at least a main supervisor, there should normally be at least one other supervisor.

This recommendation has been adopted almost universally across the sector; public information was available for 146 institutions, and of these 136 (94%) had an absolute requirement in their regulations for team supervision.

But the requirement seems to have been subverted to some extent; evidence both from supervisors (UK Council for Graduate Education, 2021a) and candidates (Metcalfe et al., 2018) suggests that team supervision is far from ubiquitous (see Taylor, forthcoming) and in some instances might exist more on paper than in practice.

Massification

The growth in the numbers of doctoral candidates has far outpaced the growth in the number supervisors, meaning that supervisory loads have had to rise considerably in recent years. Exactly how much cannot be quantified because there are no historical data, but again the UKCGE survey UK Council for Graduate Education (2021c, p. 53) suggests that while supervisors regarded the optimum number of supervisees as 3–4, many were supervising larger numbers. No standardised time allocation for supervision exists, leading to differences in workload models between universities.

Domestic diversification

Massification has led to a greater diversification of the candidate population. Overall, little research has been done on the impact of changes in the composition of the candidate population upon supervisors, but again the UK Council for Graduate Education (2021c, p. 38) study offers evidence. It found that nearly nine out of 10 supervisors were confident that they could work with a more diverse candidate population.

International diversification

A further area where the study (UK Council for Graduate Education, 2021c), p. 47) indicates issues for supervisors was in supervising international candidates in so far as some felt ill-equipped to deal with specific differences in cultural aspects of the supervisory relationship. This was, in some cases, accompanied by a perception that supervising international doctoral candidates entailed higher workloads.

Duty of care

With revelations about the poor wellbeing and mental health of many doctoral candidates, institutions had to accept some responsibility for their welfare. This was in part devolved to supervisors. The UKCGE study (UK Council for Graduate Education, 2021a, p. 71) found that just over half of supervisors felt adequately supported by their institutions in discharging this new function, and that just under half felt supported generally in dealing with pastoral issues.

Proliferation of programmes

Regarding supervision in different types of doctoral programmes, one size does not fit all; each type makes different demands of students and hence of their supervisors. So, in addition to the academic research demands of the traditional PhD, professional doctorates also demand a knowledge and understanding of the relevant profession; practice-led doctorates of artistic practice; interdisciplinary doctorates in terms of working with supervisors from other disciplines, and doctorates by contemporaneous publication of possible outlets for articles, journal house styles, refereeing arrangements, and lead times for publication. Yet here appears to be no data indicating how well supervisors of non-traditional doctorates feel equipped for these additional roles.

Collaboration with academic partners

Instead of operating within a single institution, many supervisors are now in a position of working with co-supervisors from other institutions. There seem to have been no studies of how supervision has been impacted by collaboration between institutions within the UK, possibly because institutions have relatively similar frameworks. But there is at least one (Deicke et al., 2016) of the issues involved in a collaboration between a UK institution and one in Germany. The institutions have very different approaches to supervision which made co-supervision a very different experience for UK supervisors.

Collaboration with partners outside higher education

Usually, in collaborations between universities and non-higher education partners, the former provides the principal supervisor with a further supervisor drawn from the latter. This can offer benefits in terms of the partner supervisor understanding the 'real-world' nature of the project and offering contacts within the partner organisation, but it can also lead to difficulties. A survey of academic supervisors involved with partners outside higher education by Fillery-Travis et al. (2017) found that 20% felt that there was a conflict between the academic requirements of the programme and those of the sponsoring organisation, while fully 50% said that they had experienced conflict between the advice that they were offering to candidates and that given by workplace supervisors. Similarly, a small survey by Mills and James (2019) found that supervisors in partner organisations outside higher education did not always participate, which placed additional burdens on academic supervisors.

Employment patterns

Traditionally, supervisors have advised candidates on how to prepare for academic careers. But with the majority of doctoral graduates now going into other occupations, supervisors now have a role in offering advice on preparation for non-academic careers. According to the UK Council for Graduate Education (2021c) survey, 90% of supervisors felt confident in providing advice on academic careers, but the figure fell to 65% for non-academic careers.

Covid

With the onset of the COVID-19 pandemic in March 2020, supervision was shifted online. This, as Kumar et al. (2020) have pointed out, posed major issues for many supervisors in adjusting to the technology and relating remotely to candidates in the online environment. According to the UKCGE study (2021c, p. 67), 27% of supervisors found it 'very challenging' or 'challenging' to move supervision online, 38% 'slightly challenging', and only 25% experienced no difficulty. But, as Palmer and Gillaspy (2021) and Wisker et al. (2021) have shown, even supervisors who were not tech-savvy and familiar with social media found ways to overcome the challenges. Recent evidence (Neeves, 2022) suggests that, since the end of the pandemic, supervision has become increasingly hybrid with both face-to-face and online components.

Examination

The doctoral examination in the UK consists of two parts. The first is the examination of the submission which, as noted on earlier, can take various forms; for present purposes the term 'thesis' is used as a shorthand for them all. The second is the examination of the candidate, the oral examination or viva voce. While this structure is common across most of the doctoral awarding countries, in one respect the UK is almost unique: the oral examination has traditionally been a private event where the only people present are the candidate, the examiners, and possibly the supervisor(s), the latter as silent witnesses.

The fact that the viva is private creates what Anderson (cited in Morley et al., 2003, p. 264) has described as an 'awesome' potential for the abuse of candidates by examiners. In the late 20th and early 21st centuries there were horror stories about candidates being humiliated in some cases even when their theses were satisfactory and had passed with flying colours (see, for example, Burnham, 1994; Baldacchino, 1995; Hartley & Jory, 2000; Tinkler et al., 2002, Tinkler and Jackson, 2004; Delamont et al., 2004).

The need for preventative measures was taken up in successive editions of the QAA Code of Practice (2004, 2014, 2018) which recommended the introduction of independent chairs. The latter were not examiners, but experienced members of staff whose primary role was to ensure fairness in the oral examination.

The web-based survey in 2022 found that 104 of the 127 institutions (82%) had provisions for independent chairs. Of these, 67 (64%) required independent chairs for every viva; a further 34 (33%) normally allowed the internal examiner to chair the viva but required an independent chair under specific circumstances; in two cases, either there was an independent chair or the viva was recorded; and in one, both an independent chair and recording were required.

This represents a marked change from the position two decades ago (see Taylor, 2023), although there is still a significant number of institutions which operate vivas without independent chairs, and at least some continuing evidence of candidate abuse (see, for example, Sikes, 2017).

Covid

As noted earlier, the Covid outbreak in 2020 posed serious problems for candidates in terms of progressing and completing their research; in many cases overnight it wiped out access to laboratories and research subjects, drastically curtailing candidates' abilities to complete their research projects. The concern for candidates then became how they could adapt to these changed circumstances, and how smaller or different datasets might affect the quality of their theses and the value of their research.

In response, Quality Assurance Agency (2021a) produced a document to reassure candidates that it was still possible to achieve their doctorates. Their key passage (ibid. p. 3) was that:

> Theses submitted during the pandemic may have smaller datasets than originally planned but, provided they meet the national standards as set out in the descriptors are as valid as PhDs awarded at any other time.

Subsequently, the Quality Assurance Agency (2021b) also published a review of the ways in which institutions were managing the examination process. A number of institutions

encouraged candidates to submit forms with their theses detailing the impact of Covid upon their research so that examiners could make an informed judgement without compromising the standards for the award.

The QAA review (2021b) also commented on the other major impact of Covid upon doctoral examination. It noted (op.cit., p. 7) that:

> In most universities, it was a regulatory requirement that vivas were face to face . . . One large provider observed that, before the pandemic, staff were uncertain whether online vivas were even possible, only to find within two weeks of 'lockdown' the whole university had moved to them without difficulty.

During the pandemic, research (G. Griffiths, 2021; Oakley, 2021; UK Council for Graduate Education, 2021b; Wisker et al., 2022) regarding online vivas found a degree of unanimity that the experience, while different, was broadly satisfactory to candidates, supervisors, and examiners. As the QAA report (2021b, p. 7) suggested, bearing in mind the advantages in online vivas of being able to use examiners from across the globe without travel costs, associated environmental costs and bureaucracy in terms of right to work, many institutions saw '. . . no likelihood of a return to in-person only vivas'.

Conclusions

Over the past two decades or so, doctoral education in the UK has changed very substantially. There has been a convergence in institutional definitions of standards for the doctorate and in systems for assuring and enhancing the quality of provision; there has been a widespread adoption of institutional structures for doctoral education in the forms of doctoral schools and colleges; doctoral programmes have expanded from the traditional PhD to incorporate new and varied forms of provision and collaboration within and outside the higher education sector; the doctoral candidate population has grown rapidly and become diversified both domestically and internationally while wellbeing and mental health have become major concerns and patterns of employability have changed dramatically; and doctoral examination has been transformed in many institutions by the introduction of independent chairs and online vivas.

In most of these cases, the actors most affected by these changes have been supervisors. As Griffiths and Warren (2016, p. 167) have put it:

> What once seemed a relatively simple role that could be learned experientially . . . has now become a highly complex set of roles which must be learned quickly and then played out within a multi-featured landscape and moulded by a variety of influential stakeholders.

This has been realised by supervisors themselves; when asked in the UKCGE survey (UK Council for Graduate Education, 2021c) whether supervision had become more demanding over the previous five years. 71% of respondents agreed that it had, with 18% neutral and 11% disagreed. However, it does not seem to have always been realised by institutions; in response to another question about how much supervision was valued by workplaces/institutions, only 52% said that it was valued, 40% that it was not, and the

remainder were neutral. Clearly, there is some way to go in recognising the contribution of supervisors in what has been the rapidly changing world of doctoral education in the UK.

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References

Baldacchino, G. (1995). Reflections on the status of a doctoral defence. *Journal of Graduate Education*, *1*(1), 71–76.

Burnham, P. (1994). Surviving the viva. *Journal of Graduate Education*, *1*, 30–34.

Burridge, H., Gates, S., Iyer, P., Roberts, E., & Griggs, J. (2020, September 25). UKRI COVID-19 student consultation. NatCen. www.ukri.org/wp-content/uploads/2020/11/UKRI-11112020-NatCenUKRICOVID-19StudentConsultation.pdf

Byrom, N., & Metcalfe, J. (2020). Impact of COVID-19 on doctoral and early career researchers. figshare. Dataset. https://figshare.com/articles/dataset/Impact_of_COVID_19_on_Doctoral_and_Early_Career_Researchers/12361493/1

Council for National Academic Awards. (1983) . *Regulations for the award of the council's degrees of master of philosophy and doctoral of philosophy 1983*.

Deicke, W., Moes, J., & Siemans, J. (2016). Collision and coalescence – German and British cultures in doctoral education. In P. Blessinger & D. Stockley (Eds.), *Emerging directions in doctoral education* (Vol. 6, pp. 149–169). Innovations in Higher Education Learning and Teaching. Emerald. https://doi.org/10.1108/S2055-364120160000006015

Delamont, S., Atkinson, P., & Parry, O. (2004). *Supervising the PhD* (2nd ed.). Open University Press and Society for Research into Higher Education.

Denicolo, P. (2003). Assessing the PhD: A constructive view of criteria. *Quality Assurance in Education*, *11*(2), 84–91. https://doi.org/10.1108/09684880310471506

Fillery-Travis, A., Maguire, K., Pizzolatti, N., Robinson, L., Lowley, A., Stel, N., Mans, P., van Wijk, J., Prodi, E., Sprerotti, F., Dobrinnski, C., Peacock, J., Taylor, R., & Vitale, T. (2017). A handbook for supervisors of modern doctoral candidates. *Super Prof Doc*. http://superprofdoc.eu/?page_id=71

Goldstone, R., & Zhang, J. (2021). Postgraduate research students' experiences of the COVID-19 pandemic and student-led policy solutions. *Educational Review*, *74*(3), 422–443. https://doi.org/10.1080/00131911.2021.1974348

Grennan, S. (2015). Arts practice and research: Locating alterity and expertise. *Journal of Art and Design Education*, *34*(2), 249–259. https://doi.org/10.1111/jade.1776

Griffiths, D., & Warren, D. (2016). Effective supervision. In H. Pokorny & D. Warren (Eds.), *Enhancing teaching practice in higher education* (pp. 165–185). Sage.

Griffiths, G. (2021). *Virtual viva: A PhD lockdown story*. Liverpool John Moores University. https://www.ljmu.ac.uk/about-us/news/features/virtual-viva

Guthrie, S., Lichten, C., van Belle, J., Ball, S., Knosck, A., & Hofman, J. (2017). *Understanding mental health in the research environment*. Rand. https://www.rand.org/randeurope/research/projects/researcher-mental-health.html, https://doi.org/10.7249/RR2022

Hancock, S. (2021). What is known about doctoral employment? Reflections from a UK study and directions for future research. *Journal of Higher Education Policy and Management*, *43*(5), 520–536. https://doi.org/10.1080/1360080X.2020.1870027

Hartley, J., & Jory, S. (2000). Lifting the veil on the viva: The experiences of psychology PhD candidates in the UK. *Psychology Teaching Review*, *9*(2), 76–90. https://doi.org/10.53841/bpsptr.2000.9.2.76

Higher Education Statistics Agency. (2002). *Students 2001-02*. https://www.hesa.ac.uk/data-and-analysis/publications/students-2001-02/introduction

Higher Education Statistics Agency. (2015). *Students 2013-14*. https://www.hesa.ac.uk/data-and-analysis/publications/students-2013-14

Higher Education Statistics Agency. (2022). *Higher Education Statistics UK 2020-2021*. https://www.hesa.ac.uk/news/25-01-2022/sb262-higher-education- student-statistics

Jackman, P., Sanderson, R., Haughey, T., Brett, C., White, N., Zile, A., Tyrell, K., & Byrom, N. (2021). The impact of the first COVID-19 lockdown in the UK for doctoral and early career researchers. *Higher Education*, *84*(4), 705–722. https://doi.org/10.1007/s10734-021-00795-4

Kiley, M., & Halliday, D. (2019). Candidate and supervisor experiences of doctoral study in a structured, interdisciplinary training environment. *Innovations in Education and Teaching International*, *56*(5), 663–674. https://doi.org/10.1080/14703297.2019.1570306

Kumar, S., Kumar, V., & Taylor, S. (2020). *A Guide to online supervision*. UK Council for Graduate Education. https://supervision.ukcge.ac.uk/cms/wp-content/uploads/A-Guide-to-Online-Supervision-Kumar-Kumar-Taylor-UK-Council-for-Graduate-Education.pdf

Lambrechts, A., & Smith, K. (2020). *I*mpact of the Covid-19 pandemic crisis on doctoral researchers in the UK. University of York. https://eprints.whiterose.ac.uk/168633/

McGloin, R., & Wynne, C. (2015). *Structural changes in doctoral education in the UK*. UK Council for Graduate Education. https://ukcge.ac.uk/assets/resources/26-Structural-Changes-in-Doctoral-Education-in-the-UK-2015.pdf

McGloin, R., & Wynne, C. (2022). *Structures and strategy in doctoral education in the UK and Ireland*. UK Council for Graduate Education. https://ukcge.ac.uk/assets/resources/Structures-and-Strategy-in-Doctoral-Education-Smith-McGloin-Wynne-UKCGE-2022.pdf

Mellors-Bourne, R., Robinson, C., & Metcalfe, J. (2016). *Provision of professional doctorates in English higher education institutions*. Report for HEFCE by the Careers Research Advisory Centre (CRAC), supported by the University of Brighton. Higher Education Funding Council for England. https://dera.ioe.ac.uk/25165/

Metcalfe, J., Wilson, S., & Levecque, K. (2018). *Exploring wellbeing and mental health and associated support services for postgraduate researchers*. Vitae, Careers Research and Advisory Centre Ltd. https://www.ukri.org/publications/exploring-mental-health-support-for-postgraduate-researchers/

Mills, D., & James, D. (2019). Reconceptualising organisational collaborations in social science doctoral education. *Higher Education*, *79*(5), 791–809. https://doi.org/10.1007/s10734-019-00438-9

Morley, L., Leonard, D., & David, M. (2003). Quality and equality in British PhD assessment. *Quality Assurance in Higher Education*, *11*(2), 64–72. https://doi.org/10.1108/09684880310471489

Neeves, J. (2022). Postgraduate research experience Survey 2022: Sector results report. Advance HE. https://www.advance-he.ac.uk/knowledge-hub/postgraduate-research-experience-survey-2022

Oakley, S. (2021). *Making a remote viva work for you*. University of Glasgow Blog. https://uofgpgrblog.com/pgrblog/2020/6/29/making-a-remote-viva-work-for-you

Palmer, C., & Gillaspy, E. (2021). Digital shifting in doctoral supervision: Different routes to the same destination. *Innovations in Education and Teaching International*, *58*(6), 672–681. https://doi.org/10.1080/14703297.2021.1991428

Park, C. (2005). New variant PhD: The changing nature of the doctorate in the UK. *Journal of Higher Education Policy & Management*, *27*(2), 189–207. https://doi.org/10.1080/13600800500120068

Park, C. (2007). *Re-defining the doctorate*. Higher Education Academy. https://eprints.lancs.ac.uk/id/eprint/435/1/RedefiningTheDoctorate.pdf

Peacock, S. (2017). The PhD by publication. *International Journal of Doctoral Studies*, *12*, 1323–134. https://doi.org/10.28945/3781

Pitkin, M. (2020). *Postgraduate research experience survey*. Advance HE. https://www.advance-he.ac.uk/knowledge-hub/postgraduate-research-experience-survey-2020

Pitkin, M. (2021). *Postgraduate research experience survey*. Advance HE. https://www.advance-he.ac.uk/news-and-views/findings-2021-postgraduate-research-experience-survey

Powell, S. (2004). *The award of the PhD by published work in the UK*. UK Council for Graduate Education. https://ukcge.ac.uk/resources/resource-library/the-award-of-phd-by-published-work-in-the-uk

Quality Assurance Agency. (1999) . *Code of practice for the assurance of quality and standards in higher education: Section 12 Postgraduate research programmes*.

Quality Assurance Agency. (2004) . *Code of practice for the assurance of quality and standards in higher education: Section 12 postgraduate research programmes*.

Quality Assurance Agency. (2014). *UK quality code for higher education Part A: Setting and maintaining academic standards Part a the frameworks for higher education qualifications of UK degree-awarding bodies*. https://www.qaa.ac.uk/docs/qaa/quality-code/qualifications-frameworks.pdf

Quality Assurance Agency. (2018). *UK quality code for higher education: Advice and guidance: Research degrees*. https://www.qaa.ac.uk/quality-code/advice-and-guidance/research-degrees

Quality Assurance Agency. (2021a). *Advice on Doctoral Standards for Research Students and Supervisors*. https://www.qaa.ac.uk/docs/qaa/guidance/advice-on-doctoral-standards-for-research-students-and-supervisors.pdf

Quality Assurance Agency. (2021b). *Learning from the experience of postgraduate research* students and their supervisors during COVID-19. https://www.qaa.ac.uk/news-events/support-and-guidance-covid-19

Sikes, P. J. And then he threatened to kill himself: Nightmare viva stories as opportunities for learning. (2017). *Qualitative Research Journal*, *17*(4), 230–242. ISSN 1448-0980. https://doi.org/10.1108/QRJ-12-2016-0074

Simpson, R. (2009). *The development of the PhD degree in Britain, 1917-1959, and since*. The Edmund Mellon Press.

Taylor, S. (2021). *Towards describing the doctoral education landscape*. UK Council for Graduate Education. http://www.ukcge.ac.uk/article/towards-global-doctoral-landscape-475.aspx

Taylor, S. (2022). *Developments in the doctoral examination in the UK*. UK Council for Graduate Education. https://ukcge.ac.uk/assets/resources/Developments-in-the-Doctoral-Examination-in-the-UK-Taylor-UKCGE-2022.pdf

Taylor, S. (2023). The United Kingdom. In V. Kumar, S. Taylor, & S. Sharmini (Eds.), *The doctoral examination: Explorations of practice across the globe* (pp. 165–176). Routledge.

Taylor, S. (forthcoming). United Kingdown. In V. Kumar & W. Nave (Eds.), *Doctoral co-supervision policy and practice: Global perspectives*. Springer.

Taylor, S., & Humphrey, R. (2021). *A guide for research supervisors in organisations outside higher education*. UK Council for Graduate Education. https://ukcge.ac.uk/assets/resources/Guide-for-Research-Supervisors-in-Organisations-Outside-Higher-Education-Taylor-Humphrey-UKCGE-3.pdf

Tinkler, P., & Jackson, C. (2004). *The doctoral examination process: A handbook for students, examiners and supervisors*. Open University Press and Society for Research into Higher Education.

Tinkler, P., Jackson, C., & Howard, D. (2002). In the dark? Preparing for the PhD viva. *Quality Assurance in Education*, *10*(2), 86–97. https://doi.org/10.1108/09684880210423573

UK Council for Graduate Education. (1995). *Practice-Based Doctorates in the Creative and Performing Arts and Design*. https://ukcge.ac.uk/resources/resource-library/practice-based-doctorates-in-creative-and-performing-arts-and-design

UK Council for Graduate Education. (1998). *Graduate Schools*. https://ukcge.ac.uk/assets/resources/1-Graduate-Schools-1995.pdf

UK Council for Graduate Education. (2021a). *Access and Participation of Black, Asian and Minority Ethnicities in UK Postgraduate Research*. https://ukcge.ac.uk/news-and-blog/access-participation-of-black-asian-and-minority-ethnicities-in-uk-postgraduate-research-policy-briefing

UK Council for Graduate Education. (2021b). *Covid-19 Impact on Assessment of Research Degree*. https://ukcge.ac.uk/assets/resources/Covid19-Impact-on-Assessment-of-Research-Degrees-UK-Council-for-Graduate-Education.pdf

UK Council for Graduate Education. (2021c). UK research supervision survey: 2021 report. https://ukcge.ac.uk/resources/resource-library/uk-research-supervision-survey-2021-report

UK Grad. (2004). *What do PhDs do?. 2004 analysis of first destinations for PhD graduates*. https://www.vitae.ac.uk/doing-research/are-you-thinking-of-doing-a-phd/what-do-doctoral-graduates-do

Vitae. (2010). What do researchers do? Doctoral graduate destinations and impact three years on. https://www.vitae.ac.uk/vitae-publications/reports/what-do-researchers-do-wdrd-3-years-on-soft-copy-vitae.pdf

Wisker, G., Highman, L., Spronken-Smith, R., & Wagthorne, J. (2022). Across time and space: Examiner and candidate experiences of online doctoral vivas. *Innovations in Education and Teaching International*, *59*(2), 131–143. https://doi.org/10.1080/14703297.2021.2022528

Wisker, G., McGinn, M. K., Bengtsen, S. S. E., Lokhina, I., He, F., Corner, S., Lesham, S., Inouyre, K., & Löfström, E. (2021). Remote doctoral supervision experiences: Challenges and affordances. *Innovations in Education and Teaching International*, *58*(6–), 612–623. https://doi.org/10.1080/14703297.2021.1991427

Wisker, G., & Robinson, G. (2015). Experiences of the creative doctorate: Minstrels and white lines. *Critical Studies in Teaching and Learning*, *2*(2), 49–6. https://doi.org/10.14426/cristal.v2i2.36