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THE FUTURE OF DOCTORAL EDUCATION

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There has never been a time in the history of higher education when the gaze on postgraduate education, especially doctoral studies, has been more pronounced. This chapter reinforces the key themes raised in this anthology to comment on the purposes of the doctorate within a changing higher education landscape (nationally, continentally and globally); the variety of forms that a doctorate could potentially embrace; and the envisaged support structures (at institutional and supervisory levels). With these projected innovations in postgraduate education and supervision, the chapter concludes with matters of how to gauge quality of doctoral provisioning and stakeholders' experiences. These interconnected issues are raised within the context not only of changing institutional forces within academia, but the wider social, economic and political expectations of doctoral education for individual students and supervisors. The chapter argues that doctoral education of the future is likely to be more creative, varied and critical, and this will generate new sets of expectations and responsibilities for students, supervisors, institutions as well as funders and the wider 'outside of academia' partners. The chapter reviews the broadening of the scope of doctoral education beyond econometric terms to include capability development of young career researchers, activating ethical and epistemological agenda, including social justice considerations. Doctoral education cannot be divorced from sustainable service to global citizenship and humanitarian responsivity.

THE PURPOSES OF DOCTORAL EDUCATION

Shifting agendas compete for supremacy when establishing the purposes of doctoral education. This section outlines the national, global and institutional imperatives which draw drivers from historical, economic and political agendas. New theoretical accents conclude this section.

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Shifting histories, economic development and doctoral education

Any review of the future directions of doctoral education should be located within the backlog of graduates within the context of the developing world (Teferra 2014). The under-productivity of especially the African higher education context was noted in the 50th celebration of the Organisation of African Unity by its chair, Dlamini-Zuma who reported that currently less than 10% of Africans between the ages of 18 and 24 years are enrolled in any form of post-secondary school education or training. Moreover, she noted that although the enrolment in higher education had increased by an average of 16% per annum since 2000, the higher education system was marked characteristically by poor infrastructure, high teaching loads, inadequately resourced libraries and poor academic remuneration. She particularly lamented the contribution of African scholars to the agenda of science and technology output outlining that “Africa’s footprint in global knowledge production remained negligible. The continent produced less than 1% of science and technology journal articles published globally” (Makoni 2014).

Cloete, Bailey, Pillay, Bunting and Maassen (2011) comment that the role of higher education (HE) should be understood in terms of historical shifts. Early post-independence Africa initially valued its role in reconstructing a new social system. However, in the face of rising unemployment and unmet expectations of the electorate of post-colonial realities, the university system came to be considered as a “luxury ancillary” (Cloete *et al* 2011). These shifts were reinforced by international protocols which redirected emphasis towards universal primary education as outlined by the UN Millennium Development Goals (Hayward & Ncayiyana 2014). A “return on investment” discourse ensued (Psacharopoulos & Patrinos 2004; Lin, 2004) positioning HE to becoming more accountable to their funders (state, private enterprises or global sponsors). A counterforce was mooted that the HE system was indeed an “engine room for development” (Castells 1993; Sawyerr 2004). Nevertheless, competing agendas of the relevance of the HE system proliferate when continued poverty, increasing destruction of the ecological systems, and rising pandemics – especially in the context of developing countries – still dominate the continental concerns. MacGregor and Makoni (2010) argue that the new construction of the HE sector as a ‘service provider’ to address these societal needs marks a shift towards the erosion of the complete autonomy of HEIs. Universities cannot remain silos; instead they are seen as citadels of the nation state. New regimes of political accountability to the national state agenda more frequently dominate discourses of the purposes of HE at present (Samuel 2008).

This above-mentioned generic discourse about HE responsibilities has merged to shape the expectations of what doctoral education should provide. A commonly articulated assumption is that doctoral education is a key driver of the economy, since doctoral graduates are deemed capable of infusing management logistical systems and diverse critical thinking, and designing operations for increasing the productivity of a system. They are mooted to be key developers of innovation and development, able to alter existing conceptual directions. Moreover, they are interpreted to invigorate the HE system through replacing the aging cadre of academics (ASSAf 2010). However, how many of these assumptions are merely myths about doctoral graduates and their potential contribution?

Some important features of the above propositions are noted. Firstly, the language of econometric – productivity, efficiency and effectiveness – infuses these discourses. Secondly, the discourse often fails to explain overtly what ‘economy’ is being referred to. The language of formal business, industry, production lines and profit motives seems to underpin the agenda. Are advocates of doctoral education concerned with the ‘informal’ and ‘non-formal’ economy? Are they interested in the contribution that graduates will make to the social, political, cultural, and religious sectors of society? Where indeed are the philosophical traditions of a PhD embedded in these discourses?

Innovation, institutionalised academia and doctoral education

In their studies of doctoral career paths in the USA, Nerad and Heggelund (2008), Nerad (2009), Nerad, Rudd, Morrison and Picciano (2007) and Nerad, Aanerud and Cerny (2004) suggest that many myths are promoted – especially by the HE system, and indeed by professors of doctoral graduates. This approach might be interpreted as academia’s legitimisation to replicate their continued controls within the knowledge society. Certainly, we know that increasingly new knowledge is not being only developed within the halls of university structures; the world of work is choosing to produce its own ‘work-ready’ employees as they are becoming more and more dissatisfied with the quality of the graduate attributes (Griesel & Parker 2008). Nerad (2009) argues that there is evidence of a limited absorption of newly qualified graduates into the academy, simply because many more graduates are produced than can be absorbed. The aspirations to be a university professor might motivate the interest in pursuing a doctorate, but most doctoral young graduates cannot obtain a confident career trajectory within the HE system. Doctoral candidates soon learn that capitulating to the worldview of the master supervisors is one way of ensuring their entry into academia. The doctoral journey is therefore likely to

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become a rite of passage to producing subservience to master supervisors (even if only at a surface level of flattery). Does the doctoral education therefore produce innovation or imitation? Is the hidden agenda of doctoral education a matter of cloning, learning the ropes, playing the charade?

The world of work and doctoral education

In the French model of doctoral students being employed as primarily workers within a 'laboratory' within the wider economy, Angelier (2010) demonstrated that graduates were more likely better absorbed into the economy. In such a milieu doctoral students are understood to be workers first, and researchers second. Such a position produces a strongly aligned system between the doctoral students' research and what is required by business and industry and it improves the employability of the graduates since most students return to these 'laboratories' to continue their employment after graduating. The intellectual contribution is perhaps bounded by the agenda of the funders or donors. If doctoral education is about producing a well-trained workforce, then this model might be applauded. Doctoral education becomes implicated in providing passports into employment. It is not surprising that very few (1%) of the graduates surveyed in this study were able to set up 'independent' enterprises outside of their doctoral employer-employee relationships (Angelier 2010).

Economic production, competition and doctoral education

The above-mentioned studies suggest that doctoral education has become implicated in the econometric agenda: of productivity, of perpetuation of economic powers, of political and of industrial/business terms (Bloom, Canning, Chan & Luca 2014). For some, this is the very essence of a productive system driving individualistic notions of employment and opening up better life opportunities. But, this social advancement 'dream' is alive to only a small sector of the rising middle class who benefit from the patronage of specific sponsors. Is doctoral education about an elitist preparation to scale the ladders of social class? For some, doctoral education becomes associated with accrued social status and personal advancement (with attendant honorifics and titles), rather than the preparation of individuals for the service of the self to the society. Is it possible that a more socially conscious relevance rather than economic rationalities can be fostered?

Disappointingly, the HE system seems to have become seduced by a competitive status agenda. Mohamedbhai (2014) reflects on the recurring territorial mantras about national, continental and global league tables within the HEIs. Of course, this

competitive status agenda is driven by the interest to market one's institution, attract funding and develop positive reputations about one's efficiencies and outputs. In the South African context, relevant debates have consequently been sparked about the factors influencing the large under-productivity of the majority of the HEIs where 70% of the research productivity in the period 2000-2012 was produced by six universities (Cloete, Sheppard, Bailey & MacGregor 2015). A closer analysis reveals that many of these 'top-performing universities' were historically advantaged institutions that already had a legacy of research production. As a result, further investigation has been done into the skewed racialised and gendered profile of both staff and students, and especially of the capacities to supervise and graduate doctoral candidates. (This debate is elaborated in Mouton's chapter in this anthology.) This kind of analysis opens up conceptions about what are the enabling conditions (historical, financial, academic, and institutional) that produce quality doctoral graduates.

Repositioning continental and national agendas and doctoral education

A new social justice discourse is recently emerging so as to reverse the inequalities across different systems within nation states and across countries continentally. In March 2015 a continental summit [here after referred to as 'the Summit'] drew together a multi-stakeholder platform of partners: Trust Africa, the African Union Commission (AUC), the Council for the Development of Social Science Research in Africa (CODESRIA), the United Nations Africa Institute for Development and Economic Planning (IDEP), the Association of African Universities (AAU), and the African Development Bank (AfDB). The summit planning documents suggested the following objectives (African Higher Education Summit 2015):

[B]uild a constituency for transformation and investment in Africa's higher education; create a shared vision for the future of African higher education; harness and highlight exemplary efforts (best practice) and initiatives in African higher education; harness disparate efforts and interventions in African higher education; spur and sustain innovation in African higher education; create an African higher education space/community as part of the continent's integration efforts; and ensure coordination and complementarities of the various initiatives, both by African actors and international development organisations, to reposition the sector.

These ambitious goals are symbolically aiming to activate dialogue about Africa moving beyond being takers of others' knowledge, towards becoming makers of locally relevant knowledge systems. The Summit, entitled "Revitalising higher education for Africa's future", suggested that investment in building the capacity of academic staff with senior degrees will catalyse the whole education system,

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producing activists of change in all spheres of social and economic life. Similar to models from China and India, and the Norwegian countries, the Summit argued for a coordinated system of investment at all levels of the primary, secondary and tertiary education system. The combined agenda for academic, technical and vocational education was also suggested. Moreover, this agenda cannot be constructed without a dialogical collaboration with continental and global partners.

All levels of the education system were in need of expansion. Cloete *et al* (2015) emphasise the opportunities this could generate for the South African HE system as a continental hub of doctoral education. They reveal that the upward trend of enrolment of doctoral graduates in South African universities was already evident; that the South African government was already incentivising through subsidy allocation the pursuits of doctoral education; that it was relatively cheaper for students from the African continent outside South Africa to select an HEI in South Africa. Additionally, the South African Development Cooperation (SADC) Protocol allowed students to register in South Africa not as international, but as local students. Reflecting on the partnership between a South African and a Mauritian institution, Samuel and Mariaye (2014) caution that this kind of expansion into the African continent could become another form of colonial imperialism. The setting up of the terms of reference for collaborating partners around mutual reciprocity was argued to be an important goal for intra-continental dialogues around doctoral education.

For South Africa, a specific coordinated plan for doctoral education can be seen within the National Planning Commission's setting of targets for the increased output of the education system. The National Development Plan 2030 (Republic of South Africa 2012) mooted some 20 years into post-apartheid, highlights 'knowledge production' as a central driver of a transformed national state. This arguably marks a radical shift away from development reliant on purely a 'resource economy' (based largely on extraction of natural or produced manufactured goods) to one that encompasses the value of a 'knowledge economy'. This shift emulates other international states who have drawn on the use of information communication technological (ICT) networks to open up new market territories in a global economy (see Cloete *et al* 2015). Investment in ICT systems is oftentimes understood as a key driver to activate a massified education system at all levels. Besides the ICT hegemonic side-effects, those involved in operational levels of doctoral education are concerned about the very constraints of capacity to make this shift happen. (The competing expectations of massification and delivery capacity are explored further by Mouton in this anthology.)

The National Development Plan suggests a massive expansion in the enrolment and graduation trends of the education system. For example, it suggests the shift from the 2007 output of 26 doctorates per million of the population (ASSAf 2010) to a targeted 100 per million (Republic of South Africa 2012). This translates into a rise from the present 1 420 doctoral graduates per annum to approximately 5 000 by the year 2030. It is believed that such expansion is possible through investment in the funding allocation for doctoral education and outputs. It also suggests the need to re-think the forms and models of doctoral education currently being used (see discussion below). It is noteworthy that the original conceptions in early stages of post-independence in South Africa were dominated by an access and equity consideration (that is, the racialised, gendered and classed profile of the cohorts). The more recent shift signals a need for the higher education system to provide the necessary 'human resource capital' for enabling national development.

The South African research community was notably involved in the agenda of the 2015 African Summit and it can be seen how both the national and continental agendas reflect a future macro-orientated discourse. This marks the purpose of doctoral education moving beyond singularly individualistic goals; the new agenda operates on larger macro-scale conceptions of development. Increasingly in this future agenda is the need to see doctoral education as contributing to developing multi-disciplinary, inter-disciplinary and trans-disciplinary research agendas to address the intersections of issues that beset the personal, cultural, and national concerns, as well as those of the continent. The need for multiple stakeholders to steer the future directions of doctoral education is evident. It is hoped that their interconnected collaboration will fuel a coordinated vision and systemic-wide solutions. The concerns involve an interconnection between matters related to people, planet and profit; to environment, economics and ethics; to innovation, internationalisation and inter-disciplinarity.

New theoretical accents and doctoral education

New modes of doctoral education are therefore needed to accentuate the 'worthwhileness' (Jansen 2011) of a doctoral degree which includes personal, social, cultural, economic and political agendas. Fataar (2014) argues further that our doctoral education studies cannot be sanitised from matters of 'pedagogical justice': examining how our education system produces and reproduces inequities and marginalisations. In the Japanese context, Hayashi and Sugiyama (2003) comment that individual HEIs cannot exist in isolationist departmental or historical disciplinary enclaves: there is need for inter-sectoral dialogue between government,

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industry, and business and social, cultural and political systems in order to establish a forum to co-develop sustainable action. These kinds of activities will produce the quality of dialogical relations between the university and the wider society so that all will see the value of research and learning, not as an ivory-towered activity, but deeply connected solution-finding to the everyday challenges of society. HEIs and doctoral students have a responsibility to speak back to power to realise better social justice (Marcuse 2015). Doctoral education cannot be narrowly and competitively selfish, but communal and directed towards valuing the capabilities of all our global citizens (Samuel & Maistry 2014; Nussbaum 2010, 2011; Walker & McLean 2013).

Figure 24.1 summarises some of the competing sets of forces which may be said to influence our understanding of the purposes of doctoral education.

FIGURE 24.1 The competing purposes of doctoral education

THE FUTURE FORMS OF A DOCTORATE

It is not surprising that the changing purposes of doctoral education have influenced debates around the form of doctoral education. When examining the variety of forms of doctoral education, this chapter will confine itself to the varied programmatic developments contributing to a doctoral study (the processes) and the accompanying textual forms that are its targeted end product (the product). This constitutes a partial aspect of evaluating the curriculum of doctoral education. Other analyses of the curriculum are provided in Part 4 (“Innovations in postgraduate supervision”) and Part 5 (“New forms of doctoral education”) in this anthology. Samuel and Vithal

(2011) argued that different models of doctoral supervision provide specific kinds of doctoral learning. The supervision models themselves constitute the organisation of the pedagogical component of the teaching and learning strategy to activate doctoral education. It also generates new perspectives of role and identities not only for students, but also for supervisors. (See Bitzer, Leshem and Trafford in this anthology.)

Firstly, it needs to be acknowledged that massification has introduced into the HE system a much wider range of individuals with varied purposes for pursuing a study beyond their earlier master's level. This cohort of students is oftentimes not characteristically pursuing doctorates within their original disciplinary backgrounds; they have increasingly had a long span of absence from university education; are generally older than 'regular' PhD candidates and are oftentimes in full-time employment. This challenges the notions of the normative ('regular') PhD students who usually pursued doctoral studies as a 'natural progression' immediately after their master's levels studies. A 'new normal' is being established. (See Maritz and Prinsloo in this anthology.)

This new student cohort therefore draws specific programmatic resources for doctoral education: they already have a wealth of experience in the world of practice; they are already more mature, but perhaps have not kept abreast of the theoretical advances made in their original or targeted disciplinary fields for doctoral studies. The 'new normal' are not only interested in pursuing doctoral education to advance into the world of academia since other career possibilities in the workplace outside HEIs are becoming increasingly possible. (See Plowright in this anthology.) Their competences in advanced academic writing (a specialist genre of languaging) are not commonplace in their everyday world of operations. The kinds of fields in which they pursued careers entailed the manipulation of varied textual forms as means of communicating their knowledges: visual, verbal and practical messaging was frequently used to connect with the wider everyday world. These communicative strategies do not always bear the hallmarks of the rituals of conventional academic higher education *per se*. (See Aitchinson for an elaborate exposition of the purposes, practices and pedagogies of research writing in this anthology and further discussion of academic writing in the chapters by Thesen, and Guerin, Aitchison and Carter.)

Secondly, it should be noted that this massification was not always accompanied by a major expansion in the number of academic staff to support the extended number of students in postgraduate studies. Notably, the remaining academics within HEIs were themselves usually trained in the conventional traditions of doctoral study and these new students could oftentimes be interpreted as inadequately prepared to

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undertake doctoral studies. This mismatch between the resident HEI academics and the changing new student body has produced new programmatic forms of the doctoral education.

Higher education staff therefore had to re-examine the traditional modes of operation of supporting doctoral education to address both the external and the internal pressures for change. (See Mearns and Loots who explore the use of online learning collaborative platforms in this anthology.) In the UK, there was need for the development of a Quality Code for Higher Education (QAA 2014) to develop some pathway among the wide diversifications of types of doctoral education programmes that sprouted responsively. Four main types of doctorates were identified as possible curriculum forms: the (traditional) PhD study; the PhD by publication; an integrated PhD, and the increasingly wide number of professional and practice-based (practitioner) doctorates. Part 5 of this anthology is dedicated to local examples of these diverse forms.

The Quality Assurance Agency (QAA) acknowledges that these typologies were tools for examining the vast array of curriculum manifestations within the system, but that in practice, there were overlapping characteristics borrowing from each typology to suit the specifics of the programmes and the kinds of students and purposes embarked on for doctoral education (QAA 2014). This opening up of possibilities no doubt irked those who interpreted this proliferation as a diluting of the traditional hallmarks of quality doctoral study (the conventional, traditional PhD). It may be argued that the new forms were simply responding to 'market forces': gathering and recruiting a wider diversity of students into this high form of study. For some, this new expansion of doctoral typologies was also mooted as a kind of social justice agenda which challenged elitist notions of PhD study: a widening of access to previously marginalised student groups (Neumann 2005).

The UK QAA commented that the diversity of provisioning or the end textual form of the doctorate should not detract from the fundamental purposes common to all doctorates (QAA 2014). They articulated these core purposes as driven by an interest to produce independent, autonomous learners who are able to use their new found knowledge to contribute to the existing body of knowledge of a field or discipline. The new doctoral report (product) should demonstrate an original contribution to research; it must have a tangible output that was supervised and capable of being examined. The QAA further noted that a formal examination (including through an oral viva voce) was one of the hallmarks of a quality doctorate.

These hallmarks in a South African context would be largely similar, except perhaps, for the mandatory oral viva expected: many South African universities have not yet

addressed the examination of the student in an oral defence of their study, and only the finished textual report is examined. The UK version suggests that the examination process is an evaluation simultaneously of the study (the theoretical contribution), the student (the attributes and competences at the end of the process) and the supervision (the nature of the guidance and support offered by an institution). Quality assurance at the end-point of the doctoral study combines these three levels of focus (Trafford and Leshem 2008) in a programmatic, personal and institutional evaluation. A closer examination of these different forms of doctorate now follows.

The PhD

This traditional form of doctorate is usually characterised by the selection of a focused slice of a discipline. The student embarks on such a study under the close supervision of a residential expert who is a leader in the field. The study progresses through the candidate reading largely within the specialist field and drawing from the master supervisor's expertise. However, this form of PhD is no longer the norm, as increasingly more than one supervisor could be assigned to bring relevance to the chosen focus of the study. (See Wilkinson, Grimsley and Seoka in this anthology exploring these new trends of inter-disciplinarity and supervision.) Models of supervision might also involve groups of students assembled with a single professor supervisor. It is possible that a team of supervisors might also be appointed to support a single doctoral candidate, sometimes each supervisor taking on specific designated tasks within the study. Arising out of this collaboration has emerged the possibility of even jointly awarded degrees spanning national and international institutional contexts. (See Fourie-Malherbe, Botha and Stevens in this anthology exploring the rationale, challenges and benefits of joint degrees.) In some instances, especially when the new student does not have the sufficient background disciplinary or field expertise, the supervisory advisor/s might recommend that the candidate pursue some basic formally taught course to update their background knowledge to pursue the proposed studies. In some cases, these additions might constitute undertaking expected taught programmes of study. In some USA institutions, these programmes might even be credit-bearing and mandatory. The rites of passage are usually welcomed by students who see this as a formative preparation to undertake the PhD doctoral study.

In the UK review of the multiple kinds of PhDs, the QAA reported on an increasing admission of creative art-based PhDs which entered into the higher education landscape (QAA 2014). The normative textual form of the PhD in the presentation of a written PhD was not the only assessment product submitted for examination. They

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argued that this shift was being directed by funders, donors, sponsors and employers of PhD graduates who were looking for multi-media dissemination strategies to communicate new-found knowledges. HEIs were vigilant that this textual output should not detract from the founding *raison d'être* of a doctoral study as discussed above. (Tensions surrounding 'creative doctorates' are explored by Wisker and Robinson in this anthology.)

The UK standard expectation time to complete such a PhD by full-time study, noting the 'catch up/updating' strategies required to activate relevant baseline knowledge for a PhD study, was usually three to four years; for part-time study the expected norm was twice this length. Many of the students who pursued this form of doctorate by PhD were originally focused on pursuing a career in academia. (Mouton explores the statistical progression rates for the South Africa doctoral system in this anthology. The distinction between types of doctorates is perhaps masked in this systemic accumulative analysis.)

The PhD by publication

This form of doctoral education accepts that many candidates for doctoral education already have an existing repertoire of published journal articles and chapters in books, have assembled exhibitions of their expertise through visual and performing methodologies, and have produced monographs, reports and artefacts. However, the purpose of the PhD by publication was mooted by the interest to develop an inter-connective thread through these different textual forms and demonstrate the ability to develop coherence about the knowledge contribution being made across these forms. A mandatory enunciation which clarifies the commentary and thesis of a new argument and its contribution to the body of knowledge ('an exegesis') was therefore regarded as necessary. The performance-based or art-based PhDs were usually expected to be enacted or exhibited to a group of examiners. This second form of PhD by 'publication' should not be regarded as a simpler documentation of the hallmarks of doctoral study. Its form varies; not its function or purpose. (See Frick's exploration in this anthology of how this form of PhD by publication has taken root institutionally in South Africa.)

The integrated PhD

This model of doctoral education draws from elements of both the two models described above. The formal structured taught component of the preparation to conduct a PhD is more emphasised. Variations of this model include those students who may be provided an exit point from their 'doctoral studies' after completion

of only the taught dimensions which may or may not include the awarding of a qualification such as the MPhil. This model arguably accommodates those candidates who cannot afford the luxury of an extended continuous engagement with postgraduate studies especially when they have the demands of full-time work commitments. These candidates might 'resume' their doctoral studies to complete the doctorate after a break in their studies, drawing from the formative elements of their MPhil qualification/experience. The pedagogy associated with this form is characterised by the use of seminars, modules, workshops, and usually includes written assignments. The end-point of the integrated PhD is nevertheless marked by the presentation of a 'textual output' which could take on a range of manifested forms as described in the above models. The rites of passage in this form of a doctorate are usually more circumscribed: the students are generally expected to meet the requirements of specific progression steps.

This model characteristically spans a much longer time-to-degree completion than the traditional models described in the previous examples. These students draw iteratively from the world of practice and the world of academia which activate particular dialogical formulations in their PhD report. The work-life-study balances are arguably more easily managed. Most students undertaking such a study usually do not intend to enter the world of academia. Many of these students are also self-funded rather than donor- or sponsor-supported (QAA 2014).

The professional and practice-based (practitioner) doctorate

Many pejorative comments have accompanied the introduction of this model of the doctorate especially by those who argue that it undermines the emphasis on the theoretical/philosophical elements of doctoral education. However, the proliferation of this form of doctorate has led to the rapid expansion of many institutions' postgraduate enrolment targets. The strong public interest in pursuing this form of doctorate is noted in the numerous pushes by the world of work to increase the proportion of enrolment in this category. This model is rapidly gaining currency within the Australian context (Neumann 2005). The QAA in the UK defines this model as aiming "to situate professional knowledge developed over time in theoretical and academic programmes" (QAA 2014:7). Here again we note the underlying expectation to extend the body of disciplinary or field knowledge by marking an original individual contribution.

While the main organising principle of the traditional PhD might foreground the activation of the theoretically/philosophically led impetus of the doctoral study, the professional doctorate commences with strong directives to address

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recommendations for the world of practice. Both forms of doctorate aim to co-ordinate the requirements of theory/philosophy, methodology and context/practice. The professional doctorate is driven by its concerns that the theoretical and methodological dimensions are tools to activate the contextual/practice world. The end-point of the professional doctorate is able to speak back to the world of work, of practice. It is not surprising that many professional councils, such as the Health Professional Councils, the Engineering Councils, the Law Councils, Management Studies Councils, and in some cases, Teacher Education Councils (Maxwell 2003) are interested in this professional doctorate. These councils are arguing that their mandate is to protect the public interest and therefore doctoral graduates should be able to provide the best quality advice on how to manage, design and regulate the quality of practice based on deep theoretical understandings.

These professional doctorates are increasingly being sought after by the social work type professions (nursing, health professional workers, educationalists, social workers) who see the value in the balance between theoretical, methodological and contextual factors in their doctoral studies. The studies are usually located in the candidate's place of work and are conducted by mid-career professionals (Lee, Brennan & Green 2009; Wellington & Sikes 2006). Professional councils value this form of doctorate not as a mandatory requirement as a 'licence to practise', but as providing direction to the world of practice based on a broader analysis of the discipline. The inter-disciplinarity between different fields is a noted feature of these doctorate products. This form of doctoral study takes on varied textual outputs, including written textual, verbal, visual and other multi-media formats.

Other curriculum selections in doctoral education

This above typologies of doctorates activate a discussion about permutations of the potential designs of doctoral education programmes (Kehm 2007). This diversity has, however, generated advocates and adversaries alike who wish to preserve, resist or expand particular forms. Institutions concerned about their research status are likely to embrace or reject certain models. For example, in the relatively newer South African universities of technology (UOTs), a discussion about the form of doctorates they will select has emerged (ASSAf, 2010). Some UOTs have chosen to emulate the 'stories of success' of prestige national HEIs, thus electing not to embrace this diversity of doctoral forms, but simply to adopt the traditional PhD. Status rather than appropriateness might be the key driver.

A further challenge to doctoral programme design is the increasing need to address the legacy of first-generation students in our South African universities at present.

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Course designers need to consider how to develop the kinds of academic literacy and cultural capital required to succeed among students who have no immediate role models in their homes and lack the personal background to engage with this form of study. This challenge is faced across language, class and racial backgrounds (McKenna 2002; Jacobs 2007, 2010, 2013) by students who have to traverse the entry into the discourse of higher education studies. Their challenges are exacerbated by the fact that specialist literacy is needed in the academic writing up of the doctoral study report (Wilmot, Lotz-Sisitka & Boughey 2015). This support also extends to novice academics and young career post-doctoral scholars.

Furthermore, the doctoral curriculum designers need to acknowledge that not all disciplines/fields bear a similar 'signature' (Shulman 2005). Table 24.1 below represents Matos's (2013:631) depiction of the typologies of doctoral education pursued in the social sciences compared to the natural sciences. These typologies invoke the need for greater acknowledgement of the variances of doctoral forms. However, the large incomes activated for doctoral studies and their relative quick turn-around time to produce doctoral outputs by the natural sciences seem to (arrogantly) dictate that its model should become the benchmark for all pursuit of doctoral education. Managers who ignore the differentiated nature of the forms of doctoral education from these disciplinary perspectives run the risk of imposing normative models of knowledge production that are not appropriate for all disciplines or fields. The cost implications and expenditure required to activate disciplinary doctoral education is also embedded differentially by this representation.

TABLE 24.1 Differences between PhDs in social sciences and in the natural sciences

	PhD in the social sciences	PhD in the natural sciences
Scope of the thesis	Student responsible for whole research project	Student responsible for a part of a wider research project
Topic of the thesis	Student's own	Part of a wider research project and selected/assigned by the supervisor/principal investigator
Results	Only positive results accepted	Negative results accepted
Proximity to supervisor	Meeting by arrangement	Constant presence of supervisor
Location	Student rarely has own space provided by department/university Many students work from home	In the laboratory
Proximity to other researchers	Lonely endeavour	Close to other researchers in same laboratory

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	PhD in the social sciences	PhD in the natural sciences
Funding	Student has to apply individually for funding	Attributed to student as part of the overall funding for supervisor’s project
Duration of doctoral programmes	Rarely within four years	Stricter time limit – due to way funding is organised
Facilities	Usually none	Lab, computing facilities, desk

(Source: Matos 2013:631)

The above section challenges the ‘one-size fits-all’ notion of the forms of doctoral education and the hallmarks of quality. Furthermore, it needs to be acknowledged that international comparative accounts of expanding doctoral education encompass more willingly these divergent forms, while some national or institutional or disciplinary contexts still hold dearly onto their preferred routinised models. If expansion, social justice and relevance of doctoral education are key to our pursuit, then it is necessary to examine the possibilities presented above more openly.

SUPPORT STRUCTURES FOR DOCTORAL EDUCATION

This section highlights the obligations of institutional designers of doctorate education to establish appropriate support structures within their organisations to cater for the increased enrolment and diversification of purposes and forms of doctoral education. Three broad types of innovative institutional arrangements are possible according to the UK QAA (QAA 2014). Each represents a typology that can be offered in a variety of permutations related to the available resources (human, physical and financial).

Graduate schools

The multiplier effect of investment of a graduate school to support doctoral education administratively is widely being accepted across institutions where supervisory capacity is unable to cope with the demands of expanded massification. This approach has already become a standard feature of most US HEIs (Nerad 2009). Such support involves the setting up of peer networking groups of students and supervisors to provide a common platform for dialogue. These graduate schools provide usually a ‘one-stop’ hub of administrative and technical support for doctoral candidates, spanning their registration, allocation of supervisors, defence strategies and examination processes. More characteristic, however, is the establishment of graduate schools not at centralised institutional level, but those located within specific conglomerations of inter-disciplinary departmental/faculty structures, connecting programmes from different disciplinary/methodological areas. They

could even cross borders institutionally, regionally or nationally with the possibility of the joint awarding of doctoral degrees (Hayashi & Sugiyama, 2003). The academic community of interconnected researchers activates targeted paradigmatic border-crossing work as well. These governance structures most often do not alter the fundamental architecture of the academic subsidiary affiliates. (See Groenewald and Steenekamp who elaborate on such potential in this anthology.)

Doctoral training partnerships

The second structural support model is usually linked to a more time-bounded research project. It temporarily assembles researchers (doctoral candidates and their supervisors/teams) to promote specific project goals. It is usually a precursor to the setting up of new institutional units drawing on the team in real or virtual time and space. The training element, embedded in its title, suggests the emphasis on the development of skills targeted to activate the project, including sharing disciplinary/field-based knowledges from the different partners and/or supplementing the dearth of expertise in one institution. It serves as a lever for a new research impetus. Such a doctoral training programme could also be a multi-disciplinary assemblage within an organisation itself and its function is characteristically largely academic rather than administrative.

Centres for doctoral training

The third model of support targets the generic development of skills required to promote doctoral studies. This model includes a focus on proposal writing, referencing techniques, the genre of academic writing, and the communication and dissemination of research publications. Some critique of this model of disembodied generic approaches has been suggested but a proliferation of institutionally led opportunities is usually part of the staff induction/staff development initiatives especially for novice academics (Jacobs 2007). Carter and Laurs (2015) present an analysis of this generic, across-campus support for doctoral students. They argue that it generates its own ethical, practical and pedagogical complexities. (See Guerin, Aitchison and Carter in this anthology.)

A burgeoning of texts to support doctoral education has emerged to support the generic development of doctoral studies. Publishers have interpreted the self-help type of industry as responding to the doctoral students' felt needs. The following titles suggest the issues that doctoral students are requesting as additional support beyond the academic disciplinary input offered by their supervisors: "Presenting your research"; "Developing transferable skills", "Achieving impact in research"; "Teaching

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in higher education". The successful sales of these texts suggest that institutions could be offering these 'soft skills' in a more organised fashion. Or perhaps the argument might be that there are some skills that doctoral students themselves can manage and develop on their own. However, the dialogue between the disciplinary experts (content) and these generic units of support (usually language experts) is increasingly the agenda of new research (Arbee & Samuel 2015).

The aforementioned support structures will no doubt change the face of how doctoral education is managed at institutional level in future. Institutions will have to make choices about what interventions (or permutations of such) are offered: 'fix the student', 'fix the curriculum', and/or 'fix the staff' are among the selections to be made. Increasingly, individual doctoral students will become engaged in research communities where dialogue and sharing across different studies will become the norm. The lonely journey for doctoral education is perhaps over.

SOME CONCLUDING THOUGHTS: THE QUESTION OF QUALITY

The hallmarks of the quality of doctoral education have infused the discussion of the three broad sections outlining the shifting nature of the purpose, form and support to doctoral education. In recent times the notion of the graduate attributes of doctoral candidates has come under the spotlight as a key ingredient of that hallmark (Griesel & Parker 2008). I shall not comment extensively on this issue since Denicolo (in this anthology) shows adequately how this agenda translated into the work of the QAA in the UK. Suffice to say here is that the four broad domains related to doctoral attributes of the Researcher Development Framework (RDF) (QAA 2015) have some degree of universal appeal: knowledge and intellectual abilities; personal effectiveness; research governance and organisations; engagement, influence and impact of doctoral education. The sub-set of over 60 attributes related to these domains was tested in fieldwork studies in a variety of contexts. Forty-seven participant countries are already reviewing this model (Metcalf 2015).

However, when the outline of the RDF was presented to different stakeholder groups of aspirant doctoral candidates, or to doctoral candidates at different stages of their educational programmes, to supervisors, institutional managers, employers, and the wider academic community, each group highlighted different combinations of the core attributes they deemed essential as targets for doctoral education (QAA 2015). This framework then becomes a useful tool to gauge the preferences of various stakeholders for doctoral education. It could serve as a useful tool for dialoguing about (programmatic, institutional and national) policy choices.

While the RDF is not intended to serve as a judgmental yardstick, when employers or funders are offered such opportunities to make explicit their criteria, it is likely that the unintended consequence may be that curriculum designers (and their managers) within HEIs might fashion their programmes to enhance the employability of their graduates within the funders' worldviews. It is also likely that within different institutional settings, with differing resources, certain priorities of graduate attributes will become elevated above others. The RDF becomes a tool for explicating the specific contextual vantages of varied settings, opening up the dialogue about what constitutes expectations of curriculum selections. Moreover, the RDF has also been used to assist novice doctoral candidates to develop a trajectory for their own development, pinpointing specific development personal/professional attributes they deem necessary (QAA 2015).

How would such a research developmental tool possibly be used institutionally in the highly unequal distribution of research capacity and output within the South African landscape? Would it be likely to generate competing expectations of what are the drivers of quality doctoral education? Is it possible for the lowly ranked institutions to generate unique priorities of quality doctoral education? Or will the powerful dominant hegemony still hold sway? Why is it that the debates about doctoral education quality are largely confined to the so-called advantaged institutions? Have the underperforming institutions largely accepted spectator status?

In this chapter it has been argued that the future of doctoral education has undergone – and is still undergoing – fundamental questioning and that the traditional models of only a one-on-one master-apprenticeship model are being challenged. A wider agenda of possibilities is already on the menu to address the expanding doctoral education community. The creation, usage, development and dissemination of doctoral processes and products warrant that new shapes and forms of supervision and programmes will become the order of the future. In future, doctoral education will increasingly need to pay attention to how the programme designers support candidates with their unique expectations, to develop doctoral identities, ranging in the process of being and becoming activators of relevant knowledges based on theoretical, philosophical, methodological and contextual demands. It is likely that the thesis report will no longer remain only a written textual product. The world of academia will need to embrace the challenge of moderating, evaluating and assessing new forms of multi-media and technological forms of doctoral products. Our doctoral programmes will have to be directly responsive to the changing profile of who our students are and what they hope to do with the insights they gain from their doctoral education.

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On an institutional and national agenda the discourse about the future doctoral education will examine questions of how to raise the productivity of all South African institutions, especially those institutions that have not yet developed an acceptable standard and quality of output. But this dialogue about the value of a PhD cannot confine itself in a narrowly individualistic or institutional competition: the nationalistic myopia to drive the agenda of future doctoral education will also be inadequate. The doctoral student is a member of an interconnected rapidly changing knowledge expansion and their place within a continental and international community of scholars is what should be driving the support we as curriculum designers of doctoral education in higher education offer.

It is not so much the production of the end-point of the doctoral degree (in mechanistic calculations of access, throughput and output) that will provide the hallmarks of the successful doctoral education programmes of the future. The quality of the future doctoral education programmes will be about how they enable the development of an aspirational trajectory of young doctoral career researchers making contributions at multiple levels: theoretically, methodologically and contextually. Doctoral education will not be narrowly mono-disciplinary, but inter-connected into an intersection of issues: social, political, cultural, economic, ideological and academic. Doctoral education should become part of the means of developing ways of being and relating in the social challenges of a global community. Doctoral educators and their students will become the future cultural agents of change.

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