SHIFTING PURPOSES OF SOUTH AFRICAN DOCTORAL STUDIES

I. Ntshoe
Faculty of Humanities
Central University of Technology
Bloemfontein, South Africa
https://orcid.org/0000-0002-2038-1723

F. Faller
School of Education
University of the Witwatersrand
Johannesburg, South Africa
https://orcid.org/0000-0002-7095-5078

S. Burton
Department of Biochemistry, Genetics and Microbiology
University of Pretoria
Pretoria, South Africa
https://orcid.org/0000-0002-3094-8420

A. Kaniki
Research Associate SARChI T&L and FPP2 Academic Advisor
University of Johannesburg
Johannesburg, South Africa
https://orcid.org/0000-002-0636-0571

A. Leitch
Department of Physics
Nelson Mandela University
Gqeberha, South Africa
https://orcid.org/0000-0003-1086-2627

ABSTRACT

Varying views have been expressed about the purpose(s) of doctoral studies and qualifications. The views have been changing over time, as have the factors inducing the changes. This article examines a range of such factors, taking into account global developments in a neoliberal knowledge economy that may be influencing and may continue to influence South African approaches to doctoral studies, within a differentiated higher education institution taxonomy. It examines the impact of such matters as the pressures of marketisation, institutional typologies and missions, the emergence of inter-, trans- and multidisciplinary research, and the prioritisation of public, social good (decolonisation, equity and social justice), complementing private good,

globally and in South Africa. The article argues that these developments should not minimise the benefits, in many cases, of an introspective research academy, but that there is a place for diversity in the articulation of the purpose(s) of doctoral studies and consequent qualification. It is further argued that the debate over the shifting purpose of doctoral studies needs to be further explored. The article draws on findings from a recent South African national review of doctoral qualifications, and a subsequent analytical report, in which emerging trends and inhibiting challenges are identified.

Keywords: multi-purpose, doctoral studies, marketlike behaviour, public/private good, cross-disciplinarity

INTRODUCTION

The article draws on the recent *Doctoral Degrees National Report* (Council on Higher Education (CHE) 2022) which summarises findings drawn from a national review of doctoral qualifications conducted in 2019–2021. The benchmark applied to the review was the *Qualification Standard for Doctoral Degrees* (CHE 2018). The National Report emphasises the critical relationship between the purpose of doctoral study and qualification, and graduate attributes that are expected to be attained, as prescribed in the Doctoral Standard. The Report concluded that South African higher education institutions (HEIs) addressed this relationship inconsistently, with various interpretations.

> "Some have equated the purpose of the qualification with their overarching institutional mission statements with the result that their interpretations of the qualification purpose are too broad and miss the uniqueness of the specific doctoral level of qualification. Others highlight critical foci of qualifications in general but also miss the opportunity to offer a unique rationale for the doctoral qualification. In some instances, individual faculty mission statements relating to doctoral qualifications are not fully aligned with broad institutional mission statements. Other institutions simply regurgitated the purpose as stated in the Standard and missed the opportunity to relate it to the characteristics of the fields and disciplines of the qualification or suite of qualifications that they are offering. Much is assumed rather than presented in a clear articulation of the uniqueness and distinctiveness of a particular qualification." (CHE 2022, 17).

The Report concludes that many institutions need to ensure congruence between doctoral purpose statements and their mission, vision and academic strategy. The discussion in this article is positioned in the broader global economic context.

THE PURPOSE(S) OF DOCTORAL STUDIES: A GLOBAL PERSPECTIVE

Generally over time, divergent views have epitomised discourse on the changing purposes of a doctoral qualification. One view asserts that, traditionally, a doctoral qualification offered in a conventional university had a single purpose of producing conceptual disciplinary knowledge

through research that is essentially introspective, and is focussed less on producing doctoral graduates to serve the interests of stakeholders outside academia (Austin 2011, 1 and 6; Probst and Lepori 2008). That view has its critics. Some argue that it is out of date and does not take current changes into account. The traditional postdoctoral academic pathway "is no longer the norm" (Young, Kelder, and Crawford 2020, 98). Thus:

> "[t]oo often, PhD training is still, at least conceptually, organized as it was after its development in and subsequent export from mid-nineteenth-century Germany. At that time, young scholars were attached to individual professors in a master–apprentice relationship, with the objective of safeguarding and advancing knowledge in individual disciplines. That cannot continue if the next generation of scholars is to meet society's demands" (Editorial, *Nature* 2023, 414).

At the other end of the spectrum of views is one shaped by the 21st century neoliberal university, that prioritises more utilitarian and instrumental purposes of doctoral studies with emphasis on production of knowledge that is primarily serviceable beyond the academy, and on graduates who are employable beyond, with the capacity for resolving problems in various contexts, both known and novel (CHE 2018, 14). In this context "neoliberal" signals a gradual gravitation by universities towards the expectations of industry and doctoral graduates who are innovative, and able to solve problems in different contexts (Probst and Lepori 2008, 477). In terms of this perspective, "the Humboldtian belief that scholars could be provided with the opportunity to pursue knowledge for its own sake and that such endeavours eventually would lead to a useful outcome for society has faded and been replaced by more instrumentalism to ensure desirable results" (Teichler 2006, 172). The neoliberal perspective depicts universities as entities that advance government and market forces, obligated to constantly justify processes of decision making (Reiners 2014, 11). The reasons for leaning towards greater instrumentalism include: limited options for tenure within academe; more discerning employers seeking specific practical skills; governments and funders demanding research outcomes relevant to economic growth and societal impact; and universities seeing economic value in better alignment with industry (Jones 2018, 815).

Instrumentalisation has over time encouraged universities to produce more profitable forms of research in all fields of study. This implies that higher education and doctoral studies must advance not only private interests but also economic, social and cultural profits accruing to the broader society. Instrumentalisation has also seen increasing incorporation of skills and competency in doctoral graduates to make them more marketable and employable (Kumar 2011, 34). It has further engendered shifts of accountability from academia towards accountability to stakeholders outside academia, including government and other funding

agencies, employers and industry. Accounting for this trend, Canaan and Shumar have argued that shifts include accountability to government, markets, professions, to peers, as well to the general community (Canaan and Shumar 2008).

Situated between the two extremes lies a third, more nuanced perspective, prevalent in the contemporary environment: a hybrid of the previously-mentioned two approaches, one seeking a balance between the two extremes. This perspective proposes a dual- or multi-purpose role for doctoral studies. It integrates the two perspectives described above. It suggests that a doctoral degree should aim at both advancing conceptual disciplinary knowledge through research as well as contributing to specialist usable knowledge, and to societal and economic challenges, providing for solutions in general, and preparing doctoral graduates for employment in the global economy (Bernstein et al. 2014; Diogo et al. 2022, 286). However, the placing of doctoral studies into neat and rigid categories does not, in many contexts, apply in practice.

The term "single-purpose" is often used to describe research that prepares doctoral graduates exclusively for an academic career specialising in a single discipline, often with narrow focus within that discipline. "Multi-purpose", on the other hand, describes research worthy not only in its own right but also preparing doctoral graduates for employment and careers, where "knowledge is generated in the context of multi-stakeholder teams that transcend the boundaries of traditional disciplines" (Gray, Iles, and Watson 2011, 250).

The terms "single-purpose" and "dual-" or "multi-purpose" in this article refer, in the first instance, to what employment and/or future research options are available to the graduate and the extent to which doctoral studies have initially aimed at, and consequently achieved, that range. That aspect is closely related to the manner in which higher education institutions are adapted to accommodate the interests and expectations of industry, commerce and employers. That, in turn, depends on an institution's awareness of and responsibility for – in addition to private good accruing to the researcher and the institution – its public good, in social, ethical, cultural and economic terms. One feature of an institution's adaptability to the public good is its approaches to the development of research topics, for both supervisors and students, in the context of a gradually increasing call for multi-, inter-, and transdisciplinary research. This article explores some of the inter-relationships between these various aspects. A multi-purpose role for doctoral studies in the South African context will also take into account the need for decolonisation of knowledge and its effects on social transformation.

Globalisation has induced universities to "educate doctoral students who are world citizens, cross national boundaries, accept differences and embrace diversity" (Nerad 2014, 5). Nerad further argues that universities within this frame are considered producers of human capital in the form of doctoral graduates who will contribute to economic growth (Nerad 2006,

6). Countries are therefore expected to repurpose their doctoral studies in order to become competitive in research innovation and competitive in the current global economy (Bernstein et al. 2014; Nerad and Trzyna 2008; Cardoso et al. 2021).

In particular, globalisation has inspired new thinking on the "meaning and purposes of research in doctoral programs, development of new considerations of quality, and new mechanisms for quality assurance" (Nerad 2014, xiii).

DOCTORAL PURPOSE IN SOUTH AFRICA

Analysis of purposes and roles of doctorate qualifications in this article is postulated within the broader framework of a differentiated higher education sector informed by the higher education policy developments from the early 1990s onwards. The policy identifies three purposes of higher education that could be summarised as follows: i) to develop societal and labour market needs in the global economy; ii) to socialise people into becoming empowered critical citizens capable of evaluating knowledge and sharing it; iii) to offer higher education that pursues academic scholarship and intellectual inquiry, through research, learning and teaching (Education White Paper) (Department of Education (DoE) 1997, 3, 7, 4).

The three purposes were developed to capacitate higher education, primarily to redress past inequalities through a transformed, reconfigured sector, "to serve a new social order, to meet pressing national needs, and to respond to new realities and opportunities" (DoE 1997, White Paper: 1.1).

Although not explicitly discussed in the Standard and the Report, doctoral studies have not been immune to changes precipitated by globalisation, including responses to the global economy, marketisation, commodification, new managerialism and entrepreneurial spirit.

Global interest in doctoral studies from universities, science councils and government, including "the idea of the knowledge economy and the importance it places on a steady supply of high-level new knowledge for innovation and sustained growth", is noted in the Qualification Standard (CHE 2018, 8). The influence of globalisation in doctoral qualifications is further acknowledged in the Standard: "global growth has brought about growing diversity of the student cohort in both background and preparedness, as well as increased student mobility, which has led to attempts at the trans-national level to set doctoral benchmarks" (CHE 2018, 8). An aspect of the doctoral benchmarks highlighted in the National Report is:

> "quality impact on international comparability, competitiveness and mobility, preparation of future researchers and their likely research output; and on national capacity to respond, through research, appropriately and innovatively, to the various demands of globalisation, localisation and transformation, in the context of a rapidly changing knowledge economy" (CHE 2022, 8).

The Standard suggests that doctoral studies could be a useful tool for producing graduates who are adaptable to fluctuating circumstances and can act as agents of intellectual progress (CHE 2018, 11). It suggests that the ability and capability of doctoral graduates are coupled to engagement "with local, national, regional and international research and/or professional communities ... to seek benefit arising out of the research for any community or social group that was the subject of, or participated in, the research" (CHE 2018, 11). The National Report affirms the position of the Standard of encouraging institutions to "ensure that doctoral studies reflect global/international and regional contexts and attempts at the transnational level to set a doctoral benchmark" (CHE 2022, 108). Albeit implicitly, the pronouncements of the Standard and the National Report about the significance of contributing to regional, global and international imperatives involve broadening the purposes of doctoral studies in different contexts – from single-purpose to multi-purpose doctorates.

IMPACTS OF MARKETISATION, NEW MANAGERIALISM AND ENTREPRENEURSHIP ON THE PURPOSE(S) OF DOCTORAL STUDIES

A cursory account of these terms and their impact on the shifting purposes of doctoral studies is warranted. Marketisation, new managerialism and entrepreneurship driven mainly by globalisation pressures have collectively accelerated shifts in the traditional purpose of doctorate studies.

Marketisation describes situations where HEIs, in their doctorate qualifications, are pressured to embrace "market-like behaviours" in non-profit making institutions (Reiners 2014, 10). Marketisation advocates more efficiency and accountability even in non-market institutions including universities (Canaan and Shumar 2008, 4). As a result, HEIs, through their intellectual entities from faculty to individual academic levels, are forced into competition for reputation and the distribution of limited resources. Market-like behaviour has stimulated the rise in expectations of universities to produce doctoral graduates who have acquired "useful" and "practical" knowledge as well as qualifying for professions outside academia (Deem, Hillyard, and Reed 2007), and commodification of doctoral studies, seeing students as potential customers (Barnett 2004, 63).

Significantly, market-like behaviour has further initiated commodification, the process of transforming education, higher education in general and doctoral qualifications in particular, into social goods (Canaan and Shumar 2008, cited by Reiners 2014, 9). This process often results in knowledge produced in universities as a commodity to be sold and bought by the public and students.

New managerialism, on the other hand, describes the penetration of private sector practices in institutions funded through government, including doctoral studies. This incursion of market values has resulted in the erosion of autonomy and academic freedom of institutions, individual supervisors and students when choosing areas of research (Deem 1998, 51). As a consequence, institutions and supervisors have progressively become more open and accountable to government and other stakeholders outside the academy, especially industry and other funding agencies when deciding on doctoral research areas and topics. Similarly, because of decline in government funding, research institutions at all levels, including doctoral level, have generally embraced the ethos of entrepreneurship involving the generation of funding from industry and business. Funding from outside academia has a general inclination towards research areas and topics of doctoral studies more required by industry (Clark 1998). This has created new opportunities for changes in terms of knowledge boundaries, and reconfigurations of the purposes of doctoral education. Entrepreneurial activities are also manifested in "the multiplication of innovative doctoral programs aiming at strengthening collaboration with the entrepreneurial sector and to create experts able to work" (Diogo et al. 2022, 286). This has, in some cases, resulted in institutions prioritising research that attracts funding, sometimes at the expense of research that promotes social public good and social justice.

THE TRANSFORMATIONAL IMPERATIVE

Here we take account of the national policy of differentiation in terms of institutional missions, goals and mandates, and the transformational imperatives and priorities in the higher education system.

Issues remaining inconclusive are the extent to which the changing purposes of doctoral studies reflect, or do not reflect, institutional typologies, how the purposes are changing, and how higher education institutions, both public and private, respond to equity needs, including decolonisation. Furthermore, a number of factors shaping the purposes of the doctorate in South Africa are discussed, including the neoliberal emphasis on utilitarian benefits of research, differences between "pure" and "applied" knowledge, the effects of a differentiated institutional typology, tensions between institutional missions and strategic goals on the one hand and pressures arising from global rankings on the other.

As part of the transformational imperative, some institutions, regardless of their types, acknowledge the need to broaden their purpose of advancing a decolonisation narrative through their doctoral programmes. Such acknowledgement occurs within the context of ongoing debate around the concept of decoloniality and its practice. Recent trends suggest that the role of many doctoral studies is inevitably located within geopolitical contexts and could be a powerful tool

to advance the decolonisation agenda by engaging alternative theoretical conceptual frames and pedagogies in disciplinary research. Decolonisation means, inter alia, the recognition of African epistemologies, and their potential contribution to the promotion of social justice in higher education.

This goal of epistemological transformation could be pursued by developing capabilities of doctoral graduates to engage "Southern theories of knowledge and theoretical research, recognising 'epistemologies of the South', and social and cultural geography theories [in their doctoral journeys]" (Marathunga 2018, 98). These epistemologies include indigenous, Southern and transcultural knowledge that should be afforded "equality of opportunity" with dominant Northern scientific knowledge in order to build "a more just and democratic society" (De Sousa Santos 2014, 190) through doctoral studies. By broadening their epistemological spectrum, graduates in a country like South Africa may be better equipped to identify and respond to contextually relevant research opportunities.

THE PURPOSES OF DOCTORAL STUDIES IN A DIFFERENTIATED SYSTEM

Differentiation is premised on the principle that the university sector needs to differentiate in terms of institutional missions, mandates and educational priorities (DoE 1997; Department of Higher Education and Training (DHET 2014).

A reconfigured differentiated system was created to ensure progressive responses from institutions to a multiplicity of social needs experienced by the country (CHE 2000, 64). Thus,

> "institutions were to have a range of mandates (principal orientations and core foci) and pursue coherent ... educational and social purposes with respect to the production of knowledge and successful graduates ...: the institutional mandates would provide the framework within which 'specific institutional missions and strategies' would be developed to ensure diversity." (CHE 2000, 34).

Consequently, the higher education system, through mission and programme differentiation, was to be empowered to serve diverse socio-economic development needs, as they affect both employer and student, locally and nationally (DoE 2001, 12; DHET 2014).

Prior to transformation, higher education was, firstly, highly segregated along racial and ethnic lines, and language groupings. Secondly, rigid differences between a university and a technikon system existed in practice. Thirdly, there were the ideological and political impacts of some research-intensive universities being exempted from institutional mergers (that comprised of trans-binary mergers of legacy institutions, creating universities of technology (UoTs) and comprehensive universities comprising amalgamations of university with

technikon), that became the hallmark of higher education sector configuration (CHE 2000; Ntshoe 2010, 28).

Specifically, typological differentiation saw the emergence of a new university type: UoTs. UoTs were mandated to prepare graduates for practice in technological and technical fields (CHE 2006). Differentiation in terms of institutional typologies was contained in the Higher Education Qualifications Framework (HEQF) (DoE 2007) that proposed distinctive knowledge types to be produced by the different institutional types. According to the institutional typology, UoTs were created to offer knowledge required by different occupations, while traditional universities were to offer more conceptual knowledge and more research-based qualifications (DoE 2007; Ntshoe and Malebo 2021, 139). "In terms of this categorisation, distinction is made between curricula and qualifications that aim to produce disciplinary knowledge and curricula and qualifications that produce applied knowledge and production of professional technologists for specific occupations demanded in the workplace" (DoE 2007; Muller 2009, 217, cited by Ntshoe and Malebo 2021, 139).

Institutional types were expected to develop their own distinctive characteristics, grounded in unique statements of vision and mission, distinguishing them from other institutional types (DHET 2014). Thus, the policy makes specialisation in the higher education sector possible to "enhance excellence and ensure the greatest returns on the use of limited resources" (DHET 2014, 87).

A gravitation towards homogeneity in higher education and doctoral studies is at times driven by the privileging of global ranking systems, with many universities seeking to gain recognition on them. The term "world class", used widely in discourses related to ranking systems, points to the need for a university to be "research intensive" (Badat 2010). Although institutional ranking policy was not explicitly used to describe institutional types in South Africa, global forces have been intense, prompting most institutional types, not only the research-intensive higher learning institutions, to become more competitive and improve their place in the global ranking league table. "Thus, global rankings have drawn many 'newer' institutions to want to emulate 'research-intensive' institutions" (CHE 2022, 13). The implication of this on the purposes of doctoral studies is an appetite to prioritise research areas that appeal to a global audience and underplay local public and social good of doctoral studies (Readings 1996, 32).

Three observations about homogenisation and mission drift are: first, purposeful differentiation according to institutional missions and mandates has applied to lower levels of higher education qualifications, but not in master's and doctoral studies. Second, this policy is gradually becoming blurred in practice, even at the lower levels as institutions gravitate towards

homogeneity to become "pure" research-intensive institutions, at the expense of producing applied specialist knowledge. Third, and perhaps less explicit, is the seeming lack of understanding of distinctive features of the different institutional types. Ironically, a differentiated institutional typology may become a subtle, completely unintended ranking system itself.

The policy on purposeful differentiation of institutions in terms of institutional mission, vision and mandate described above is not explicitly mentioned in the Standard. The Report, however, suggests that differentiation has become blurred in practice to the extent that "institutional typologies do not seem to have any impact in terms of whether a university provides a general or professional doctoral degree" (CHE 2022, 23). Thus, "in spite of the differences in institutional typologies, sizes, histories, cultures, trajectories and other differentiating factors, the application of the Standard has to be uniform across the sector" (CHE 2022, 28). However, uniformity required by a qualification standard does not, *per se*, inhibit differentiation in institutional vision, mission and the consequent characteristics of doctoral priorities.

MULTI-, INTER- AND TRANS-DISCIPLINARY APPROACHES IN DOCTORAL RESEARCH

Another issue affecting the fitness of purpose (or purposes) of doctoral qualifications is that many doctoral candidates are "inadequately prepared for the cross-disciplinary working and large teams that characterise cutting-edge science today. This is especially true for careers outside academic research, where the overwhelming majority of PhD candidates will be heading" (Editorial, *Nature* 2023, 414). Such "cross-disciplinary" research includes, in our article, the variants: multi-, inter- and trans-disciplinarity (sometimes identified by the acronym MIT). Cross-disciplinarity implies the crossing of either or both of "horizontal" boundaries (across disciplines) and "vertical" boundaries involving experts, policymakers, and practitioners working across their traditional disciplines in practice (Lele and Norgaard 2005, 967).

Cross-disciplinarity shares common features denoting efforts that involve several disciplines. Multidisciplinary, on the other hand, refers to situations where practitioners, or academics, work across different disciplines while retaining their own. "Cross-disciplinarity is therefore additive, interactive, and holistic respectively, and appropriate for solving life-world problems and analogous to Mode-2 knowledge production" (Alvargonzalez 2011, 392). Inter-disciplinarity represents a harmonisation of various disciplines and establishes reciprocal relationships between them, while trans-disciplinarity refers to a team from various disciplines,

embracing theories, concepts and approaches from a variety of disciplines and developing shared approaches to work on common problems using a shared conceptual framework (Choi and Pak 2006, 352, 355, 359). Trans-disciplinarity integrates diverse disciplines. It goes beyond conventional disciplinary frontiers (Choi and Pak 2006, 351; Alvargonzalez 2011, 388). Increasingly in sustainability studies, trans-disciplinarity is referred to as co-conceptualisation and production of knowledge to address complex problems, by persons from different disciplines and sectors of the community.

Cross-disciplinary research has been described as research that seeks to address complex sustainability problems "from a 'science with society' perspective instead of the traditional approach of 'science for society'" (Muhar, Visser, and Van Breda 2013, 122). The authors add that "[s]uch problems are ontologically and epistemologically complex, with many disciplinary and non-disciplinary ways of understanding and defining what they are".

One reason for a relatively slow current uptake of cross-disciplinary doctoral research is that, when conducted within a traditional academic unit, "a tendency towards alignment with the traditions of the respective school might develop, which can conflict with new, unconventional approaches" (Muhar et al. 2013, 123).

Cross-disciplinarity has its roots in the perceived distinction between Mode 2 and single-disciplinary-based Mode 1 research, a distinction developed by Gibbons et al. (1994) (Wheelahan 2007, 139). Gibbons et al. at that time, argued that:

> "the disciplinary-based mode of knowledge production, referred to as 'Mode 1', was becoming superseded by trans- and cross-disciplinary modes which they referred to as 'Mode 2'. Mode 2 crucially involved 'contextualisation', that is, the interpenetration of scientific knowledge and social contexts, where not only does science 'speak to society', but where society 'speaks back to science'." (Muller and Young 2013).

The assertion underpinning Mode 2 is that graduates are unable to keep abreast of cutting-edge developments in rapidly expanding knowledge domains (Gappa, Austin, and Trice 2007), and the increasingly porous boundaries between those fields.

An increasing prevalence for Mode 2 knowledge, in particular its relevance to cross-disciplinarity, raises questions about its potential to displace basic research intended to advance knowledge of single disciplines. Such concern is, however, countered by Wheelahan's view postulating that deep specialisation in a single discipline and cross-disciplinary doctoral studies are complementary, not incompatible (Wheelahan 2007, 122). There is space for both Mode 1 and Mode 2 trans-disciplinarity (Scholz and Steiner 2015, 527). The respective characteristics of these Modes denote "a symbiosis between disciplinarity, homogeneity and autonomy on the

one hand, and trans-disciplinarity, social accountability and immediacy of knowledge distribution on the other" (Faller et al. 2023, 101). It should be noted that "[t]he epistemological codes of what is considered a valuable contribution can differ between communication within a scientific community and communication within an external audience" (Fujigaki and Leydesdorff 2000, 636).

Wheelahan's view is exemplified by a study on multi-disciplinarity in the Health Sciences requiring collaboration among experts in a range of distinctive cognate disciplines. Similarly, multi-disciplinarity in doctoral studies is also applicable to studies on the treatment of global warming, water purification and gender studies, among others (Dolling and Hark 2000, cited by Alvargonzalez 2011, 392). Cross-disciplinarity therefore does not in any way negate or nullify disciplinary boundaries, but rather negotiates increasingly-evident porosity between traditional boundaries through cross-disciplinary work. Thus, less emphasis is placed on blurring distinction between disciplines than on accommodating and promoting the basic inter-relationship between Mode 1 research and applied Mode 2 research (Wheelahan 2007, 139).

Wheelahan's notion of this inter-relationship presupposes that, ideally, the doctoral graduate should first have a firm and deep grasp of specialisation in the primary discipline, and then utilise such knowledge in traversing other disciplines so that applied Mode 2 research is sustainable (Wheelahan 2007, 122). This assumes a deep grasp of specialisation acquired at the Master's level: a significant challenge for studies at that level. Austin endorses Wheelahan's position claiming that "scholars should be able to work beyond their own discipline and other different fields" (Austin 2011, 4). Drawing from the discussion above, cross-disciplinarity can be said to empower doctoral graduates to accomplish knowledge not only in their own fields, but also that they should be able to critically appraise and analyse knowledge acquired both within and beyond one's primary discipline (Bernstein et al. 2014, 15; Canaan and Shumar 2008, 21; Gappa et al. 2007). This approach is less about dissolving disciplinary boundaries than it is an attempt to avoid over-polarisation of these boundaries, in terms of subject matter, theoretical and conceptual frames, and methodologies.

The Qualification Standard recognises that "the frontiers of knowledge" may comprise single-discipline characteristics or embrace cross-disciplinary perspectives. While eschewing any indication of preference, it includes, as a fundamental graduate attribute, "insight into the inter-connectedness of one's topic of research with other cognate fields", namely, "how the specific area of research relates, or is relatable, to other fields of study and practice" (CHE 2018, 13). There are diverse ways in which cross-disciplinarity can be approached. The challenge would be in a model in which it is embedded in the research topic of an individual doctoral student, studying under a single supervisor. This requires that both supervisor and

student are adequately versed in a specific cross-disciplinary combination, a situation that would often be lacking in an institution's prevailing intellectual resources. Another model would have a student supervised by a pair or team of supervisors from different disciplines. It would be important, in such cases, that any form of competition between supervisors for topical prominence, diverting focus from the student's interests, is avoided. A third model – and possibly the most feasible – is a cross-disciplinary team of doctoral students researching under guidance from a compatible team of supervisors. In all cases consideration needs to be given to the possibility that some cross-disciplinary knowledge may be tacit or intermediate (Faller et al. 2023, 101), "and the fact that knowledge is not made explicit or is not defined by a 'field of work or study' does not mean it is not present or is not of a high level" (Lester 2015, 166). There may be differences, among diverse disciplines, between the ratios of explicit and tacit knowledge.

The National Report indicates that cross-disciplinary studies are generally supported by higher education institutions to promote knowledge production appropriate for the workplace. Such studies were more prominently advocated in the private institution sector, largely because of their close alignment with business and industry, resulting in many students wanting to research topics that are close to the strategic priorities of employers. As one private institution put it, "industry requires leaders with agility in dealing with a range of demanding situations, which cannot be engendered by focussing on a single discipline" (CHE 2022, 25). Cross-disciplinary approaches provide opportunity for research collaboration, preparing students for continual evolution of workplace-related research priorities, and for meaningful roles in a competitive world of work. In this context, promotion of cross-disciplinarity may be regarded as an expansion of the range of purposes of doctoral research and output.

While cross-disciplinary research is generally embraced as a tool to expose students to types of knowledge that transcend single disciplines and their traditional boundaries, the implementation of this mode is often contested in practice. Reasons include official categorisation of educational subject matter and its effects on state funding in the form of bursaries and output subsidy incentives, rigid institutional structures and rules, departmental silos that promote single-disciplinary research, values derived from hidden assumptions about other disciplines, supervisory conservatism, and, in some cases, a lack of necessary infrastructure to support cross-disciplinary studies. Besides these factors, caution emanated from fields in which deep disciplinary knowledge is paramount, and there is a perceived fear that cross-disciplinary routes 'tend to dilute the acquisition of required disciplinary knowledge' (CHE 2022, 25). Yet, it may be, that "[w]e can no longer solely rely on a reductionist method, i.e., removing the problems from their context and analysing them in their 'atomistic' state"

(Muhar, Visser, and Van Breda 2013, 123). But, whether research is single-disciplinary or cross-disciplinary, one aspect is shared: "relevance is a necessary condition for rigour, leading to new forms of engagement with theory and practice" (Gray et al. 2011, 249).

Ultimately, the National Report seeks a balance between single-disciplinary and cross-disciplinary approaches to doctoral research. When suited to a research topic, the latter ought to be fostered as "good practice" (CHE 2022, 70), with a provision that students are able to develop "critical and independent scholarship in a field of specialisation".

PUBLIC, SOCIAL AND PRIVATE GOOD PURPOSES OF DOCTORAL STUDIES

An apparent binary between social/public good on the one hand, and private good emanating from doctoral studies on the other, remains a grey area and depends on peoples' perspectives on the purposes of doctoral studies. Some argue that qualifications gained at universities in general, and doctoral qualifications by extension, provide benefits that are not public goods (Barr 2004) while others reckon that such qualifications represent "impure public goods" (Schoenenberger 2005), "quasi-public goods" (Blaug 1972, 107; Jongbloed 2004). "Quasi-public goods" is possibly more appropriate, in that higher education generally, and doctoral studies in particular, are not construed as wholesome civic properties only, but allow for private benefits as well.

A rigid dichotomy forged between public and private dimensions of doctoral studies is compromised by intrinsic properties of social and private returns, "neighbourhoods"/"spillover" benefits or externalities of "quasi-public good". Doctoral programmes yield private and public goods, making it impossible to separate public from private benefits (Blaug 1972, 105–114). This needs to take into account the ratio between input (fees which may be carried by the individual, a funding agency or the state in the form of bursaries, as well as energy and time) and output (such as an innovative contribution to a discipline, returns to a community that was subject of the research, or benefit to a funder).

Public-social and the private dimensions of doctoral studies can be problematic where the private aspect is clearly driven by marketisation and commercialisation of education in general (Bernstein et al. 2014). There are obvious cases where public good and commercialisation coincide. An example is the development of new vaccines; a clear public good accompanies market value for the patentee. The public benefit is arguably aligned with Nixon's argument (2015) that higher education "should contribute to the public good by promoting the reduction of inequality in its own activities and in society generally" (cited by Williams 2016, 136). There may also be cases where the good is not immediately accepted by the public, or significant sectors of the public, although it may be eventually. In addition to that, there needs to be clarity

on who defines, in each case, the public good, and on what criteria. Recent disputes on public benefit of research outputs in the fields of pandemic vaccination, climate change and energy generation are cases in point.

Notwithstanding these caveats, there is evidence that in at least some South African higher education institutions there have been conscious decisions actively to promote public/social as well as private benefits in doctoral research, in addition to advancing deep specialisation aimed primarily at discipline-specific development. Such attitudes were more prevalent in private institutions, given their traditional mission of training doctoral graduates for specific applied knowledge and skills for particular industries. The South African Qualification Standard is clear that one of the purposes of a doctoral degree is, "where relevant, to seek benefit arising out of the research for any community or social group that was the subject of, or participated in, the research" (CHE 2018, 11). The National Report implicitly seeks to extend the scope of "relevant" cases by encouraging institutions to "consider fostering attributes such as critical citizenry and consciousness of social responsibility" (CHE 2022, 74). It suggests that the latter attribute "enhances an appreciation of the context of an enquiry" and contributes to "addressing democratic South Africa's inherited socio-economic imbalances", thereby benefiting society "rather than focussing exclusively on the private good driven by private motive". This recommendation proposes, not a diminution of private good, but rather a closer alignment between the private and the public/social benefits accruing from doctoral research and qualification. Nor should commercial or market interests compromise the disinterested pursuit of knowledge. The Report emphasises that "pressure to commercialise the research in a doctoral study should not outweigh the goal of an original contribution to knowledge and the attainment of the graduate attributes for a doctoral degree" (CHE 2022, 95).

CONCLUSION AND IMPLICATIONS FOR POLICY AND PRACTICE

This article has used the recent Qualification Standard and the subsequent Report, arguing that there is little doubt that globally, and at local context level specifically, purpose(s) of doctoral studies and other qualifications are responding, and indeed must respond, to a rapidly-changing knowledge economy, the changing nature of knowledge and an increasingly broadened range of occupations/careers for doctoral graduates. We argue that there is a need for institutions to take into account the principles (and their rationale) of institutional differentiation, mission and epistemological transformation in formulating the purposes of South African doctoral qualifications, where public good, equity and decolonial imperatives are dominant and unavoidable.

In terms of disciplinary perspective, we have argued that, while a traditional approach to

the doctorate – narrow disciplinary focus with an introspective academic destination – remains an important feature of independent research with, mainly, a private good outlook, there is a need for institutions to give complementary attention, perhaps priority, to dual- or multi-purpose orientation for doctoral research. Such attention would encompass, among other features, accountability for public good benefits, sensibility to the needs of external parties such as government, industry and employers, responsiveness to transformational imperatives, and the fostering of inter-, trans- and multi-disciplinary research fields and topics.

In particular, the article supports the argument that the traditional binary between the purposes of doctoral studies to advance either conceptual disciplinary knowledge, or specialist applied usable knowledge, is untenable. This binary needs to give way for more purposeful differentiation and complementarity in and between the purposes of doctoral studies in different contexts.

We further argue that the current ambivalences about embracing cross-disciplinarity in doctoral studies is seemingly based on the mistaken assumption that this approach denotes the blurring and depolarising of disciplines. Conversely, cross-disciplinarity in this article is construed to mean negotiating disciplinary boundaries and thinking beyond one's own discipline without compromising the identity of a primary discipline. Thus, given the increasingly acknowledged cross-disciplinary nature of reality, a doctoral student able to negotiate boundaries between various modes of research through cross-disciplinarity is likely to function more effectively both within and beyond the academy than one with knowledge of a mono-discipline.

We conclude that the current rigid dichotomy between public and private dimensions of doctoral studies is no longer helpful, given the inherent indivisibilities between the social and private returns of a doctoral qualification.

REFERENCES

Alvargonzalez, D. 2011. "Multidisciplinarity, Interdisciplinarity, Transdisciplinarity, and the Sciences." *International Studies in Philosophy of Science* 25(4): 387–403.

Austin, A. E. 2011. "Preparing Doctoral Students for Promising Careers in a Changing Context: Implications for Supervision, Institutional Planning and Cross Institutional Opportunities. In *Doctoral Education in International Context: Connecting Local, Regional and Global Perspectives*, edited by V. Kumar and A. Lee, 1–15. Serdang: Penerbit Putrat Malaysia.

Badat, S. 2010. "Global Rankings of Universities: A Perverse and Present Burden." In *Global inequalities and higher education: Whose interests are you serving?* edited by E. Unterhalter and V. Carpentier. Palgrave Macmillan: Basingstoke.

Barnett, R. 2004. "The purpose of higher education and the changing face of academia." *London Review of Education* 2(1): 61–73. DOI: 10.1080/147484604200017748.

Barr, N. A. 2004. "Higher Education Funding." *Oxford Review of Economic Policy* 20(2): 264–283.

DOI: 10.1093/oxrep/20.2.264.

Bernstein, B. L., B. Evans, J. Fyffe, N. Halai, F. L. Hall, H. S. Jensen, H. Marsh, and S. Ortega. 2014. "The Continuing Evolution of the Research Doctorate." In *Globalization and Its Impacts on the Quality of PhD Education Forces and Forms in Doctoral Education Worldwide,* edited by M. Nerad and B. Evans, 5–30. Rotterdam: Sense Publications.

Blaug, M. 1972. *An Introduction to the Economics of Education*: London: Penguin Books.

Canaan, J. E. and W. Shumar. 2008. "Higher Education in the Era of Globalisation and Neoliberalism." In *Structure and Agency in the Neoliberal University,* edited by J. E. Canaan and W. Shumar, 1–32. New York, London: Routledge.

Cardoso, S., S. Santos, S. Diogo, D. Soares, and T. Carvalho. 2021. "The transformation of doctoral education: A systematic literature review." *Higher Education* 84: 885–908. https://doi.org/10.1007/s10734-021-00805-5.

CHE see Council on Higher Education.

Choi, C. K. and A. W. P. Pak. 2006. "Multidisciplinarity, interdisciplinarity and transdisciplinarity in health research, services, education and policy: Definitions, objectives, and evidence of effectiveness." *Clinical Investment in Medicine* 29(6): 351–364.

Clark, B. R. 1998. *Creating entrepreneurial universities: Organisational pathways of transformation*. Guildford: IAU Pergamon/Elsevier.

Council on Higher Education. 2000. *Towards a New Higher Education Landscape: Meeting the Equity, Quality and Social Development Imperatives of South Africa in the 21st Century.* Pretoria: Council on Higher Education.

Council on Higher Education. 2006. *Kagisano, University of Technology*: Pretoria: CHE.

Council on Higher Education. 2013. *The Higher Education Qualifications Sub-framework*. Pretoria: CHE.

Council on Higher Education. 2018. *Qualification Standard for Doctoral Degrees*. Pretoria: CHE.

Council on Higher Education. 2022. *Doctoral Degrees National Report*. Pretoria: CHE.

De Sousa Santos, B. 2014. *Epistemologies of the South: Justice against epistemicide.* Boulder, Colorado: Paradigm Publishers.

Deem, R. 1998. "'New managerialism' and higher education: The management of performances and cultures in universities in the United Kingdom." *International Studies in Sociology of Education* 8(1): 47–70. DOI: 10.1080/0962021980020014.

Deem, R., S. Hillyard, and M. Reed. 2007. *Knowledge, Higher Education, and the New Managerialism. The Changing Management of UK Universities*. Oxford: Oxford University Press.

Department of Education. 1997. *Education White Paper 3 a programme for the transformation of higher education*. Pretoria: Government Printers.

Department of Education 2001. *National Plan on Higher Education*. Pretoria: Department of Education.

Department of Education. 2007. *Higher education qualifications framework*. Pretoria: Government Printer.

Department of Higher Education and Training. 2014. *Policy framework on differentiation in the South African post-school system*. Pretoria: DHET.

Diogo, S., A. Gonçalves, S. Cardoso, and T. Carvalho. 2022. "Tales of doctoral students: Motivation and expectations on route to the unknown." *Education Science* 2: 286. https://doi.org/10.3390/educsci12040286. https://www.mdpi.com/journal/education.

DHET *see* Department of Higher Education and Training.

DoE *see* Department of Education.

Editorial. 2023. "PhD training is no longer fit for purpose – it needs reform now." *Nature* 613: 414. doi: https://doi.org/10.1038/d41586-023-00084-3.

Faller, F., S. Burton, A. Kaniki, A. Leitch, and I. Ntshoe. 2023. "Achieving doctorateness: Is South African higher education succeeding with graduate attributes?" *South African Journal of Higher Education* 37(2): 93–108.

Fujigaki, Y. and L. Leydesdorff. 2000. "Quality Control and Validation Boundaries in a Triple-Helix of University-Industry-Government: 'Mode 2' and the Future of University Research." *Social Science Information* 39(4): 635–655.

Gappa, J. M., A. E. Austin, and A. G. Trice. 2007. *Rethinking faculty work: Higher education's strategic imperative*. San Francisco: Jossey-Bass.

Gibbons, Michael, Camille Limoges, Helga Nowotny, Simon Schwartzman, Peter Scott, and Martin Trow. 1994. *The New Production of Knowledge; the dynamics of science and research in contemporary societies*. London: SAGE.

Gray, D. E., P. Iles, and S. Watson. 2011. "Spanning the HRD academic-practitioner divide – bridging the gap through Mode 2 research." *Journal of European Industrial Training* 35(3): 247–263.

Jones, M. L. 2018. Contemporary trends in professional doctorates. *Studies in Higher Education* 43(5): 814–825. https://doi.org/10.1080/03075079.2018.1438095.

Jongbloed, B. 2004. "Regulation and Competition in Higher Education." In *Markets in Higher Education: Rhetoric or Reality?* edited by P. Teixeira, B. Jongbloed, D. D. Dill, and A. Amaral, 87–112. Dordrecht: Kluwer.

Kumar, V. 2011. "Supervising Postgraduate Students: Reflections from Malaysia." In *Doctoral Education in International Context: Connecting Local, Regional and Global Perspectives,* edited by V. Kumar and A. Lee, 24–36. Serdang: Penerbit Putrat Malaysia.

Lele, S. and R. Norgaard. 2005. "Practicing Interdisciplinarity." *BioScience* 55(11): 967–975. https://doi.org/10.1641/0006-3568(2005)055/0967:PI]2.0.CO;2.

Lester, Stan. 2015. "The European Qualifications Framework: A technical critique." *Research in Postcompulsory Education* 20(2): 159–172. doi:10.1080/13596748.2015.1030251.

Marathunga, C. 2018. "Decolonising the curriculum: Southern interrogations of time, place and knowledge." *Scholarship of Teaching and Learning in the South* 2(1): 95–111.

Muhar, A., J. Visser, and J. van Breda. 2013. "Experiences from establishing structured inter- and transdisciplinary doctoral programs in sustainability: A comparison of two cases in South Africa and Austria." *Journal of Cleaner Production* 61: 122–129. https://doi.org//10.1016/j.jclepro2013.07.031.

Muller, Johan and M. Young. 2013. "Disciplines, skills and the university." *High Education* 67: 127–140. https://doi.org/10.1007/s10734-013-9646-4.

Muller, Johan. 2009. "Forms of knowledge and curriculum coherence." *Journal of Education and Work* 22(3): 205–226. DOI: 10.1080/13639080902957905.

Nerad, M. 2006. "Globalization and its impact on research education: Trends and Emerging Best Practices for the Doctorate of the Future." In *Quality in Postgraduate Research: Knowledge creation in testing times,* edited by M. Kiley and G. Mullins. Canberra: CEDAM, The Australian National University.

Nerad, M. 2014. "Introduction." In *Globalization and Its Impacts on the Quality of PhD Education Forces and Forms in Doctoral Education Worldwide*, edited by M. Nerad and B. Evans, 1–3. Rotterdam: Sense. https://www.sensepublishers.com/.

Nerad, M. and T. Trzyna. 2008. "Conclusion: Globalization and doctoral education – Toward a research agenda." In *Towards a global PhD? Forces and forms in doctoral education worldwid*e, edited by M. Nerad and M. Hegglund, 300–312. University of Washington Press.

Ntshoe, I. M. 2010. "Realigning visions and missions of universities in a trans-binary setting." *Progressio* 32(1): 27–41.

Ntshoe, I. M. and N. J. Malebo. 2021. "Knowledge and specialism in curricula of professional and sectoral fields of practices in south Africa: The case of universities of technology." *Perspectives*

in Education 39(2): 128–142. http://dx.doi.org/10.18820/2519593X/pie.v39.i2.10p.

Probst, C. and B. Lepori. 2008. "What is doctorate? Changing meanings and practices in communications Sciences in Switzerland." *European Journal of Education* 43(4): 477–494.

Readings, B. 1996. *The university in ruins.* Cambridge, Mass: Harvard University Press.

Reiners, A. 2014. *Humboldt versus Neoliberalism University Academics' Perception of Higher Education Changes in Germany and England*. Stockholm: Stockholm University.

Schoenenberger, A. M. 2005. "Are higher education and academic research a public good or a public responsibility? A review of the economic literature." In *The Public Responsibility for Higher Education and Research,* edited by L. Weber and S. Bergan, 45–94. Strasbourg: Council of Europe Publishing.

Scholz, R. W. and G. Steiner. 2015. "The real type and ideal type of transdisciplinary processes: Part I – theoretical foundations." *Sustainability Science* 10(4): 527–544. https://doi.org/10.1007/s11625-015-0326-4.

Teichler, U. 2006. "Has the Research University in Europe a Future?" In *The European Research University. An Historical Parenthesis,* edited by G. Neave, K. Blückert, and T. Nybom. New York: Palgrave Macmillan.

Wheelahan, L. 2007. "The marginalisation of theoretical knowledge in vocational qualifications in Australia: A blended Bernsteinian and critical realist analysis." A thesis submitted in fulfilment of the requirements for the Degree of Doctor of Philosophy. Monash University, Australia.

Young, S., J-A. Kelder, and J. Crawford. 2020. "Doctoral employability: A systematic literature review and research agenda." *Journal of Applied Learning and Teaching* 3(Special Issue 1): 97–107. https://doi.org/10.37074/jalt.2020.3.5.1.5.