



Doctoral education – a mirror for the future of higher education?

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Overview

- Do changes to the Doctorate mirror other changes to higher education? If so how & what?:
- Organisational changes to the university
- Changes to the nature of academic work
- Recent developments in and features of Doctorate programmes and participants
- Criticisms of the Doctorate; a doctoral education crisis?
- The Doctorate of the future?

The doctoral degree

- The landscape for doctoral degrees continues to change worldwide (Golde 2014, Nerad and Evans 2014, Horta 2015, Blessinger and Stockley 2016, van den Hoven and Connell 2016, Blackman 2016 , League of European Research Universities 2016)
- This involves everything from funding, who applies, supervision practices & pedagogies (Lee & Danby 2012), to student identities/roles, thesis format, internships and interdisciplinarity
- Traditional doctorate preparation for academic work; today doctorates contribute to the wider knowledge economy (Kitagawa 2016) and beyond but the economic role may be over-emphasised
- Doctoral education reflects many external and internal changes and its fate is intimately bound up with the organisations within which it is located, as well as the changing nature of academic work as it moves from knowledge creation to performativity (Pereira 2014, 2016a, 2016b)

What marks out a 21st century university?

- A turbulent external environment nationally & globally (Nelson & Wei 2012,) whether under government control or marketised (Huisman et al 2012)
- Becoming more business-like, questioning earlier purposes (Collini 2012, Docherty 2011, Bok 2004)
- The economic dimension, not the social & cultural, increasingly drives teaching (Gumport 2000) and HE public policy on 'employability'
- Highly 'managed' (Deem, Reed, Hillyard 2007) in the context of the risk society (Beck 1992)
- Diversity in student composition and staff cultures and values; emphasis on global outlook
- Much more emphasis on partnerships and collaboration



21st century universities: ISCSP, Universidade de Lisboa, Portugal and Hamk University, Finland



21st century universities? Royal Holloway, Egham and Christ's College, Cambridge, UK

What are some of the characteristics of a 21st century university?

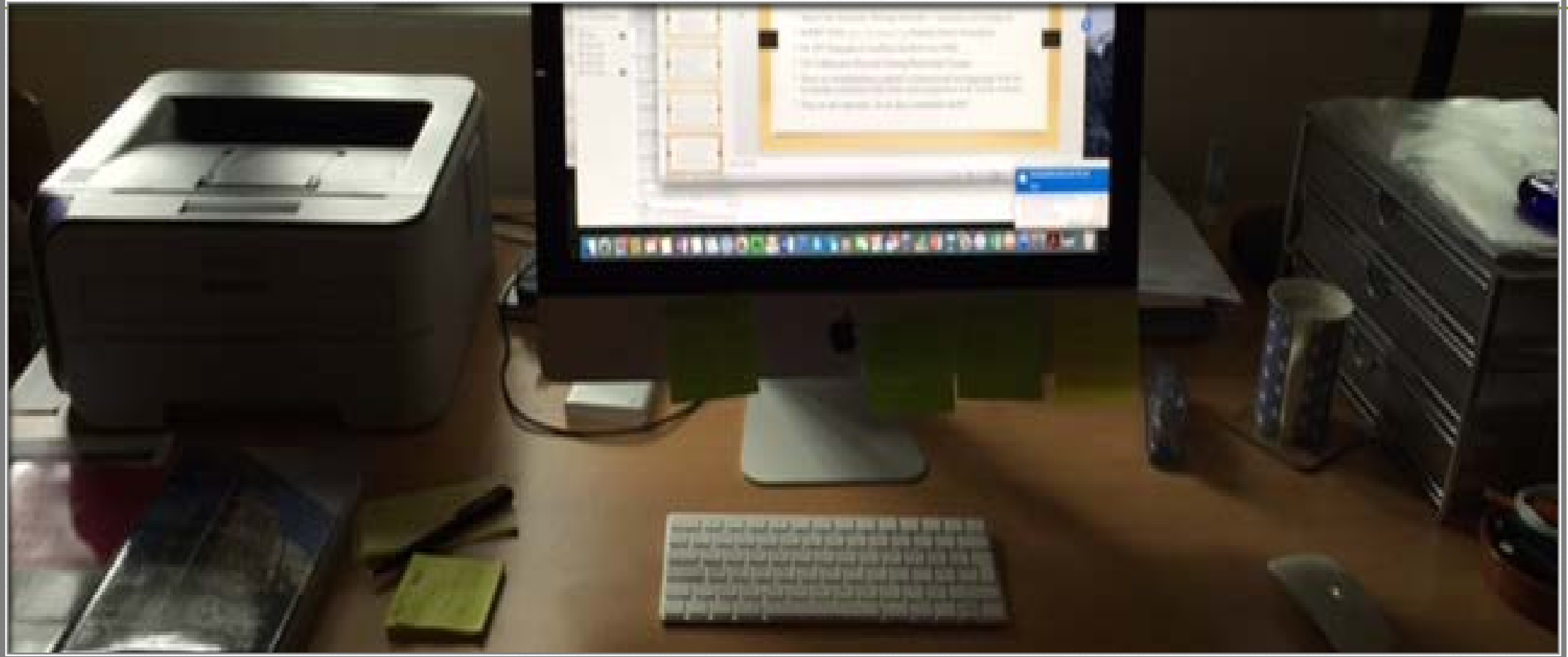
- Polarisation around research or teaching intensity
- Can be public or private or a hybrid
- Markets growing in significance (Marginson 2013) but may sometimes be 'fixed' (eg UK 2016 White Paper privileges new providers or 'challengers' over 'incumbents')
- Private interests of students overtake knowledge for knowledge's sake, with emphasis on profit
- Importance of new digital technologies and social media; e-learning isn't separated out
- Multi-skilled staff (Whitchurch 2012, Musselin 2009)
- Students who act like consumers (Naidoo, Shankar & Ekant 2011); work of Competition & Markets Authority in UK a dangerous extension of this trend

How do organisational changes to universities affect the doctorate?

- Supervising doctoral candidates just another activity of academics
- More emphasis on submission/completion as key metrics for doctoral programmes, not the academic content or contribution to knowledge
- Greater stress on collaboration across institutions and internationalising of the doctoral experience
- Destinations of doctorate holders scrutinised more carefully
- Cost and benefits of doctoral programmes held up for analysis

Recent changes to academic work

- Casualisation: academic work increasingly precarious (Lama & Joullié 2015, Courtouis & O'Keefe 2015)
- Collectivisation; more interdisciplinary & other research centres/teams, doctoral schools (Nyhagen & Baschung 2013)
- Specialisation e.g teaching-only, research-only, management-only
- Academic work is no longer as special as it was (Musselin 2012)
- Mobility/virtualisation: high academic turnover, academic travel, on-line but out-of-office, distance learning, MOOCS
- Speed-up of academic work leads to varied responses (Ylijoki 2013)

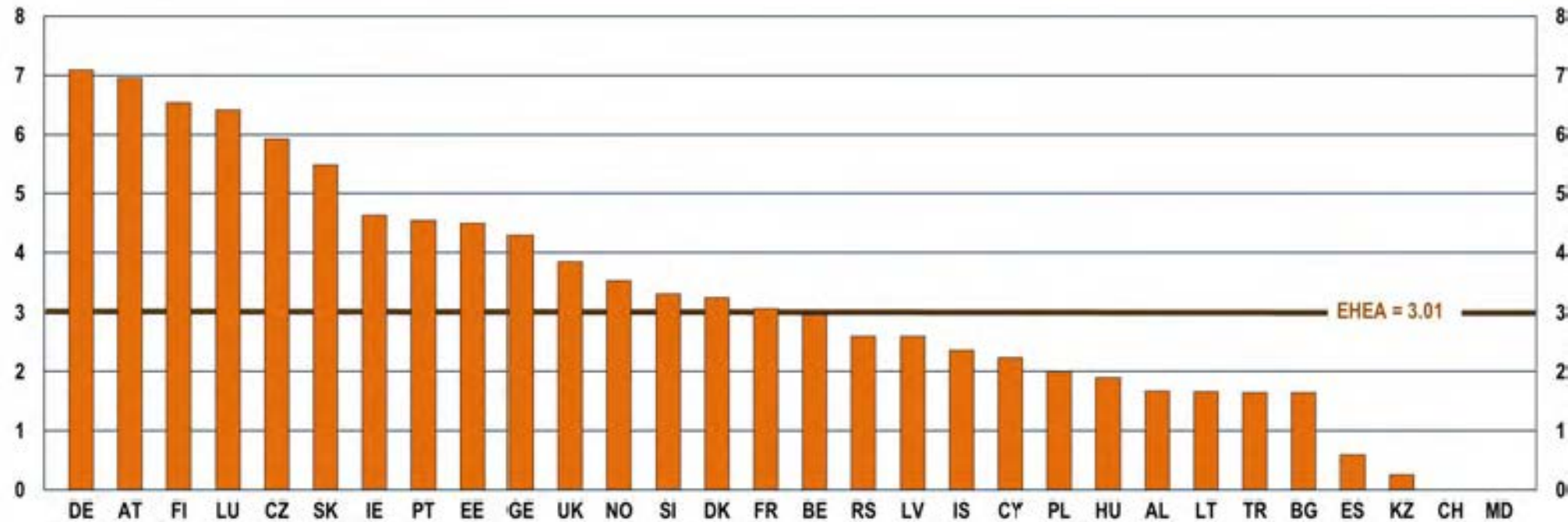


Academic work is increasingly digitised work

How changes to academic work affect the doctorate

- **Casualisation:** doctoral students badly paid to teach, few permanent jobs
- **Collectivisation:** full-time doctoral education more likely to be in collaboration with other depts or universities in same or another country;
- **Specialisation:** doctoral education becoming a field in itself
growth of doctoral schools/colleges
- **Mobility** of academics and **virtualisation** reduce f2f contact with supervisors
- **Speed-up:** supervisors have more doctoral students so their students are not 'special' any more & much greater pressure for submission/completion/publications

Share of Doctoral students out of all HE students on Bologna programmes EHEA 2012



OECD statistics on doctoral students 2011

http://www.oecd-ilibrary.org/sites/sti_scoreboard-2011-en/02/01/index.html?contentType=/ns/StatisticalPublication,/ns/Chapter&itemId=/content/chapter/sti_scoreboard-2011-12-en&containerItemId=/content/serial/20725345&mimeType=text/html

- In Switzerland and Sweden, graduation rates [reached 3.4% and 3.0%, respectively. The relative increase was largest in the Slovak Republic and Portugal.
- In 2009, women received 46% of the OECD average of total doctorate degrees awarded but remain underrepresented in science and engineering, (34% of all degrees in these subjects). Exceptions are found in Iceland (64%) and Portugal (49%).
- The largest share of new doctorate degrees is in Science and Engineering, -followed by the social sciences for men and by health and welfare for women.
- Absolute numbers of S&E doctorates have increased significantly since 2000 but share has been declining in a majority of OECD countries.
- USA is the largest single contributor of new doctorates with more than a quarter of the nearly 89 000 OECD total in 2009, -followed by Germany, the United Kingdom and France. The 20 EU countries combined account for more than half of the total number of OECD doctoral degrees in S&E'.



Who does the doctorate?

Who does the doctorate: what kinds of knowledge are privileged?

- There is considerable variation by discipline; in most but not all STEM subjects doctoral candidates are more likely to be male & full time
- In humanities/social sciences more women and part-timers but ethnicity, social class, disability remain challenges in many countries (Wakeling 2013)
- Haake (2011) notes that the gender balance of disciplines affects how students selected, what is done and how is valued. In some disciplines there are still essentialist views about gender & a belief that men & women contribute differently to same disciplines. Gender equality measures often seen to apply to women only.
- Danovitz (2016) researched an interdisciplinary gender studies doctoral programme and noted the importance to candidates of power relationships, how to find jobs and succeed in them & bodies and ways of doing gender studies

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Recent developments in the doctorate itself

- Emphasis on the 'training' PhD rather than the 'knowledge' PhD (Winfield 1987)
- Proliferation of types of doctorate: industrial (Kitagawa 2016, Casano 2016); professional (Mellors Bourne et al 2016), concurrent/prior publication (Jackson 2013)
- Greater collaboration in doctoral education (Kitagawa 2014, Deem 2015, Dahlgren 2012,)
- Increased focus on contribution of doctoral graduates to wide range of occupations, not just academe (CFE Research 2014; Ehrenberg & Kuh 2009)
- Changing perceptions of roles of doctoral candidates (Balaban 2016, Walker et al 2008)

Box 1: A model of the modern doctorate (from LERU, 2016 & 2010)

- Doctoral researchers are the drivers of their professional development...
- While being immersed in a research rich environment...
- Where boundaries to other research fields are highly permeable...
- And in which connections to the external world have a global outlook ...
- And link to other sectors of society...
- So that the skills the new doctors develop are highly valuable to the knowledge society...
- LERU 2016 p. 8

EUA Doctoral Education 2016 – Taking Salzburg forward – implementation & new challenges

- Institutional structures are diverse & open, need to watch for inefficiencies (32 EHEA countries have doctoral schools, 16 do not)
- Create space for dialogue between researchers & doctoral candidates
- Build research capacity, using strong institutional leadership
- Nurture talent at all levels, focus on rigour, resilience, originality, critical thinking, independence, ability to create new knowledge
- Develop ethos of research integrity
- Meet the digital challenge and foster open access research

Collaborative doctoral networks

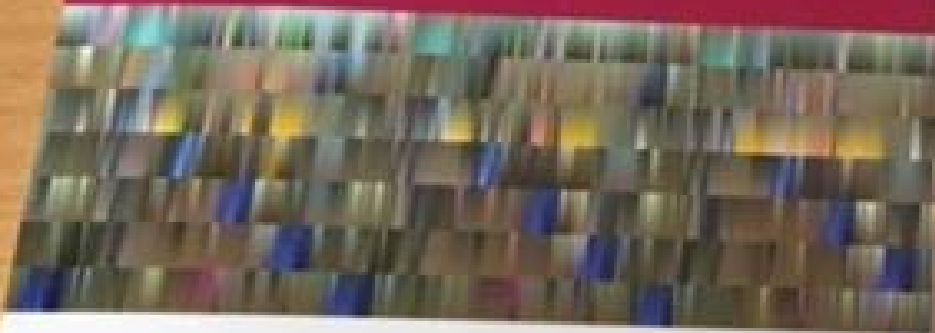
- Marie Curie Innovative Training Networks
- IGERT (USA) <http://www.igert.org> National Science Foundation
- EU FP7 Networks of excellence involved PhDs
- UK Collaborative Doctoral Training Partnerships/Centres
- These are interdisciplinary, national or international and emphasise both the knowledge contribution and future career preparation in & outside academe
- They are also expensive. So are they a sustainable model?

Policy foci on doctoral education

- Emphasis on doctoral programmes, not individual doctoral experiences
- Focus on employability outside academe but not wider social/cultural roles
- Contribution to economic growth and innovation emphasised
- The full time science model is still to the forefront (Becher et al 1994)
- Doctoral submissions & completion rates are key metrics but societal contribution not taken into account

Reshaping Doctoral Education

International approaches and pedagogies



*Edited by
Alison Lee and Susan Danby*



Doctoral Education and the Faculty of the Future

EDITED BY

Ronald G. Ehrenberg and Charlotte V. Kuh



Criticisms of the doctorate

- No longer an entirely adequate preparation for academic work (Ehrenberg 2008) and perhaps not for other kinds of work either (Mertens and Robken 2013);
- A monograph-based thesis is only suited to some disciplines (Jump 2015, Jackson 2013)
- An oral defence, whether open or especially if closed, may be seen as too subjective a way in which to examine
- One to one supervision may be giving way to more collective forms? (Lee & Danby 2011)
- The professional doctorate could wipe out the conventional doctorate? (Blackman 2016)
- Doctoral structures can be small and isolated e.g tiny discipline based graduate schools (EUA 2016)

A doctoral crisis (Cuthbert & Molla 2015)?

- Shift in policy focus from efficiency to skills of doctoral graduates
- Doctorates no longer just preparation for academic work (few jobs)
- Questions of what originality & contribution to knowledge mean
- Proliferation of doctoral types in some countries (USA, Australia, UK)
- Questioning about whether different kinds of doctorates have equivalent outcomes
- Are doctorates a new form of credentialism? (Collins 1979)

Why do we still have the doctorate?

- Academic traditions and careers?
- Contribution to the knowledge economy and innovation?
- Developing expertise and its application in wider society?
- Laboratory based scientists need research student labour on projects?
- The right to award research degrees is still a symbol of the university's autonomy? But for how long?



Tradition?

What could we change in the doctorate?

- Who we recruit; greater selectivity but focused on future leaders/versatility
- How we fund; fewer candidates but more generous stipends
- How we train and supervise; co-supervision across disciplines/HEIs/countries
- Offer more substantial international experience during the doctorate
- What doctoral graduates are prepared for: broader citizenship, social, cultural and political roles as well as careers
- The kind of knowledge doctoral candidates produce and for whom: emphasise co-production of knowledge (Jasanoff 2004) and significant translation of knowledge



Are Doctoral candidates' roles changing?

Doctoral Students' Roles

- Balaban (2016) in a review article traces a shift in how student roles regarded (noting these are not from a student perspective):
- Golde et al (2006) Students as **stewards** of their (mono) disciplines (USA Carnegie Initiative)
- Walker et al (2008) **Shared (supervisor/student) formation apprenticeships**, emphasis on student communities & blurring of disciplinary fields (USA, Carnegie research project)
- Nerad et al (2014) Students as future **leaders** in many fields, exploration of excellence, global collaborations/pedagogies, transferable skills

Changing Student Roles

- Balaban observes that these categories overlap
- Nerad et al (2014) chart the progression of the doctoral identity & engagement with the knowledge economy as well trend to greater agency
- All 3 sets of authors see students as ill-prepared for life after the doctorate
- Finally, it might be worth remembering that many conventional PhD candidates still want to be academics, whilst professional & industrial doctorate students often already have professional job or a fast track route to a non-academic career.

The doctorate as a mirror for the changing university?



How might the 21st century university change in future?

- Greater variety of organisational forms (multi-nationals, transnational campuses, on-line only, disassembled with degree validation separated from recruitment & teaching, co-operatives, elite campuses e.g Harvard, Oxford)
- Higher focus on undergraduate & vocational programmes with fast 'efficient' delivery
- Few permanent staff or spaces; casualised labour plus robot tutors in rented rooms?
- Technology-driven not technology-informed; the digitisation of everything (Selwyn& Facer 2014), learner analytics replace personal tutors, research done by artificial intelligence
- Flipped lectures the norm; production of materials & teaching separated
- Research & research-informed teaching at elite institutions only

Can the doctorate be 'unbundled'?

- Ove Kaj Pedersen suggested on Wednesday that universities will balance loss of research dominance with more emphasis on production of PhDs BUT
- Already possible to separate out initial methods/researcher development training of doctorates, on line or face to face
- Fieldwork, archival work, laboratory work could also be 'outsourced'
- Supervision a mix of external organisation personnel and casualised contracted academic supervisors or just use on line monitoring/learner analytics
- Just need a validating institution to award the degree; maybe in future this will come in a kit, activated with a credit card



Researcher development can be outsourced

Summary

- Examined how organisational changes to the university & changes to the nature of academic work, have themselves had some effects on doctoral degrees and vice versa
- Also looked at recent developments in and features of doctoral programmes and participants, including proliferation of types of doctorates, collaborative programmes and changing roles of doctoral students
- Finally I looked at criticisms of the doctorate and the notion of a doctoral education crisis

Doctorates and university futures; a two way mirror?

- As universities continue to change, so will doctoral education
- If there are fewer research intensive universities, there may be more selective admission to full time doctorates
- New private for profit providers may not see doctorates as a priority but may be interested in 'unbundling'; may need PhDs for some of their teaching
- Knowledge co-production & collaborative schemes will grow as consistent with open access principles but tested by inter institutional competition
- We could consider establishing cooperatives running PhD programmes

The Changing Doctorate

- If it survives, candidates need to be prepared for a world beyond academe but also for the broader social and cultural purposes of doctoral study
- The concept of originality in a thesis will be further challenged
- Doctoral candidates will also need preparation for a world of digitisation, translational knowledge (for wider society not just careers) and transferable skills
- Co-production and collaborative contributions may become the norm
- Equally we could be heading for doctorates written by artificial intelligence?