

Chapter 1

The PhD at the End of the World: Provocations for the Doctorate and a Future Contested –Introduction



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When the rug is pulled out from under your feet, you understand at once that you are going to have to be concerned with the floor. (Latour 2018: 8)

We live in a world in which post-truth rhetoric and challenges to the role of higher education institutions as arbiters of knowledge are commonplace. When faced with sustained attacks on the authority of evidence-based knowledge, unease is widespread. As Latour's haptic analogy so vividly suggests, there's nothing like a crisis to focus the mind on what really matters. In this case, Latour argues, it is a matter that matters more than ever: Earth. No less at stake in the Anthropocene is the survival of life on earth. Turning our gaze to the floor means inquiring into the fundamentals: the viability of life on earth when the impacts of one species (ours) are on a planetary scale.

This book was conceived in 2019, in the context of increasing alarm over the impending climate crisis. Unbeknown to us at the time, the writing of the book would coincide with the confluence of *two* global crises: that of the climate, and associated mass extinctions, and the COVID-19 pandemic. In the intervening year much has changed. By the end of 2020, the title of the book, conceived provocatively in mid-2019, has become disturbingly prescient. While the COVID-19 pandemic is and remains horrific in its personal, social and economic consequences world-wide, at first there was concern that its immediacy might detract attention from the ongoing climate crisis. While this remains a valid concern, it has subsequently emerged that the two are related. Humans intrude deeper into hitherto wild ecosystems. Wild animals are hunted and grouped together in live-meat markets, providing ideal conditions for the interspecies transmission of zoonotic diseases.

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R. Barnacle, D. Cuthbert (eds.), *The PhD at the End of the World*,
Debating Higher Education: Philosophical Perspectives 4,
https://doi.org/10.1007/978-3-030-62219-0_1

The COVID-19 pandemic appears to be yet another consequence of environmental destruction, in this case, the endless human encroachment into already scarce natural habitats—aided and abetted by mass, rapid global travel. On a positive note, however, the COVID-19 pandemic of 2020 has also revealed that global cooperation is possible at an unprecedented scale. The challenge? How to harness global cooperation towards lasting change with environmental and health benefits for all.

‘What has all this got to do with the PhD?’ you might ask. This volume examines the role of the PhD, in and of itself, and, as representative of research, the university and evidence-based knowledge, in relation to this crisis or these series of crises. The assembled essays, or provocations, address the future of the PhD and how this advanced research degree may respond to, and hopefully contribute to averting or ameliorating, the predicted environmental catastrophe. Both in terms of environmental degradation, destruction and decline, but also in no small part through the COVID-19 pandemic. Indeed, the latter demonstrates the dramatic human health impacts. The world’s environment and climate are now so altered and degraded by human activity that fears for the continued existence of humans and human society are now being articulated by experts in many fields. We have a collective responsibility to ensure PhD programs, the most advanced university award, respond, and to find ways to harness the collective efforts of our best and brightest inquiring minds to address these existential challenges.

Calls to re-think and re-direct PhD programs are not new. Numerous stakeholders have declared that a crisis besets the PhD (Barnacle et al. 2018; Cuthbert and Molla 2014). We see this crisis ‘talk’, especially in advanced higher education systems, in claims that too many PhD graduates are being produced, that they cannot find the jobs they want, and are over-qualified for many of the jobs they get. Further, PhD graduates are said to have specialisations which are too narrow and lack the kinds of transferable and enterprise skills for which the global labour market is hungry. Proponents of this crisis discourse call for urgent and thorough-going reform of the PhD to make it more serviceable to the needs of the transforming world economy (Cunningham et al. 2016; Golde and Walker 2006; McAlpine and Amundsen 2016).

In response to this prevalent PhD crisis discourse and by way of challenging it, this book addresses another, far graver crisis: that of the environment. We flip the questions currently preoccupying discussions of the PhD, by turning from a focus on a supposed crisis in doctoral education to a crisis in the state of the world. The core question is this: how can the PhD serve the planet, and what is the role of the PhD in addressing the material and existential perils currently facing the human and natural world. Given the current context, arguably researchers have a heightened ethical responsibility to consider the role of research and researchers generally and research education in particular. How should those who train the next generation of researchers respond to these issues and what forms should training in doctoral programs take?

The key philosophical inspiration for this book is the work of Bruno Latour. Particularly his insight that the climate crisis is not only an environmental crisis, for which there is ample physical evidence, but that it is also an epistemological one.

Latour articulates the connection between these crises in his lecture ‘Is Geo-logy the new umbrella for all the sciences? Hints for a neo-Humboldtian university’ delivered at Cornell University, on 25 October 2016. He has kindly reproduced this essay here, and it was circulated to authors as part of the pre-reading for this volume. In this chapter and elsewhere (Latour 2018; Latour, this volume, Chap. 2), Latour articulates the connection between the environmental crisis and the epistemological crisis which it has engendered and which in turn is complicating and compromising our capacity to respond to the former. As Latour observes, the dire state of the environment is compounded and complicated by the highly contested politics of climate change. Ample evidence exists for this in the deep and disabling divisions in the apprehension of the climate and the state of the world’s environment that now dominate world politics. Our current peril, therefore, is twofold: the state of the environment as signalled by climate change and its denial by powerful interests and entities—chiefly illustrated by, in Latour’s account, Donald Trump in the United States. Trumpism and populism more broadly, however, are neither confined to this single presidency nor region.

Latour highlights, therefore, the interconnectedness of multiple crises: health, environmental, political and of understanding and education. Education is implicated in this situation in several complex ways and it is incumbent on those of us engaged in education and research to respond. This volume examines the challenges that climate change and Latour’s wider analytical category of the new politics of climate, with its epistemological dimension and political implications, present specifically for the PhD, and for universities charged with training the next generation of researchers. What do the climate / extinction crisis and its associated politics mean for conceptions of the role and purpose of the PhD?

To examine these issues, we have assembled a highly disciplinary and geographically diverse group of leading research educators and scholars. We were delighted the vast majority of those we approached enthusiastically accepted our invitation to contribute. Despite fears the COVID-19 pandemic might undermine progress on the volume, for many its emergence galvanised their interest and, for some, deepened their engagement with the issues and Latour’s work. In addition to preeminent, internationally recognised philosopher Bruno Latour, the volume includes leading doctoral education scholars Lynn McAlpine and Susan Porter (Past President of the Canadian Association for Graduate Studies), and leading international higher education scholars, such as Ronald Barnett and Paul Gibbs. Contributors span a broad range of disciplinary backgrounds, including the technological and natural sciences, architecture and design, the creative arts and humanities; and regions, comprising Australia, North America, Europe, the United Kingdom and South Africa. In summary, the collection assembles a range of disciplinary, geographical, theoretical and philosophical perspectives under the single, unifying theme of the role of the PhD in averting the end of the world. In terms of scope, the focus of this volume is the PhD and research doctorates broadly. While noting the considerable regional and disciplinary variations, our considerations address what is common to research doctorates, that is the predominance of research and the discovery of new knowledge.

Some authors also extend their consideration to professional doctorates and the post-doctoral period to address these broader considerations as they relate to the PhD.

The book is arranged according to the concept of the earth and its preservation. Following this introduction, Chap. 2 begins with Latour's reproduced Cornell lecture. As discussed earlier, this explores how we might position ourselves to live in the strange space of an earth made perilously new by our (destructive) actions. In searching for an adequate descriptor, Latour proposes the notion of the 'critical zone' to frame his discussion of how might learn to see the world in the new way necessary for survival. Latour's considerations of what this means for universities are developed through three 'hints' at a post-Humboldtian vision. By way of summary, these encompass university outreach, new communication literacies and new disciplinary formations.

The first section of the book, 'Down to Earth—the PhD Lived-Experience', digs down into the actual experience of doing a PhD in the context of complex inter-sectoral, inter-disciplinary, and international projects, drawing out the lessons, insights and models potentially transferable to others. In Chap. 3, 'STEM PhD Student Preparation in the Eras of Cross-sector Convergence and Global Climate Crisis: An Autobiographical Exploration', recent PhD graduate Bryan G. Moravec and his advisor/supervisor, Matthew M. Mars, discuss the influence of cross-sector convergence on the preparation and socialization of STEM PhDs. Based on an autobiographical, lived -experience, approach, they reflect on how cross-sector convergence is influencing the academic training and professional intentions of PhD students with career trajectories that intersect the global climate crisis. This is followed, in Chap. 4, by an in-depth analysis of what it looks like to train action-oriented PhD scholars, steeped strategically in a highly complex, international, transdisciplinary and inter-sectoral, research context. 'Operationalising Research: Embedded PhDs in Transdisciplinary, Action Research Projects', led by Diego Ramirez-Lovering and Michaela F. Prescott, chronicles the trials of a group of four PhD candidates, also co-authors: Brendan Josey, Mahsa Mesgar, Daša Spasojevic and Erich Wolff. All are embedded in a health study revitalizing 24 informal settlement communities in the Asia-Pacific. Their reflections provide insight into how impact-oriented PhD programs can operate in such contexts to deliver social, environmental as well as academic outcomes.

Section two, 'Earthing the PhD Curriculum', pulls-out from a focus on the candidate experience to examine program level considerations, including how the re-design of PhD programs can address the climate crisis and the role of curriculum and other factors in re-shaping the PhD candidate experience. Susan Porter does this in Chap. 5, 'Postformal Learning for Postnormal Times', by examining the University of British Columbia's innovative PhD program, the Public Scholars Initiative. This work challenges the over-reliance on 'normal' ways of thinking, being, and working within PhD programs and argues that graduates need to know in different ways and be effective change agents in a diversity of settings. The Public Scholars Initiative provides an important exemplar of how this can be done.

Lynn McAlpine continues the examination of innovative PhD programs in Chap. 6, 'How Might the (Social Sciences) PhD Play a Role in Addressing Global Challenges?' Posing a practical and thought experiment, McAlpine argues that PhD reform needs to move beyond disciplinary considerations to radically re-conceive of the PhD as encompassing solution-oriented inquiry. In what is a recurrent theme in the book, an 'expanded frame' is proposed that would 'expand and deepen our interactions with those beyond our own disciplinary colleagues: not just researchers in other disciplines, but those in other labour sectors and civil society'. Reforming the PhD for impact is a theme we also take up in our Chap. 7, 'A Public and Persuasive PhD: Reforming Doctoral Education in the Outreach-Focused University'. Taking Latour's idea of the reformulation of the mission of university around outreach as the key organising principle, we argue for reform of the PhD to produce graduates who are proponents of public and persuasive science. The question of reform is examined further, this time from a regional, political perspective. In Chap. 8, 'Remaking the PhD in US Higher Education: An Assessment' Deane E. Neubauer embraces the framing proposed by Latour and explores the conundrum it creates given the particularly 'tortured frames of reference,' of the USA. He grapples with the challenges of re-conceptualizing the PhD to focus on addressing unprecedented national and global challenges in this context. How to employ Latour's categories and insights to confront the transformative dynamics of climate change, while appreciating how theoretically and analytically isolating the prevailing US perspective became under the Trump presidency?

The third section, 'Earthing Beyond the PhD', turns attention to the PhDs nearest neighbours, the post-doctoral period and cognate degrees, such as the Professional Doctorate. Leading this section, Ruth Müller, scholar of science, technology, society and policy, explores the notion of crisis in context of academic values. In Chap. 9, "'I'm sorry, but it's kind of business": Crisis, Critique and Care in and Beyond the PhD', Müller draws on the experience of postdocs' in the life and environmental sciences to expose rich narratives about the interconnecting values guiding—and distorting—academic work, from the PhD and beyond. Reorienting these core values, she argues, is essential to the ability of academic science to respond to the multiple social and ecological crises of our time. Chap. 10, by doctoral and higher education scholar Liezel Frick, explores the epistemologically vexed role of creativity in the STEM PhD. In 'Doctoral Creativity as an Epistemological Force in Saving and/or Destroying the World', Frick examines the complex and problematic status of creativity in STEM, arguing that harnessing the potential of creativity in these fields is essential to enabling doctoral researchers to address current and future socio-environmental issues. In Chap. 11, 'The Contribution to Climate Change Research of the Professional Doctorate and PhD: More of the Same but of a Different Flavour?' Paul Gibbs, philosopher of higher education, examines the relative potential of these two doctoral programs to contribute to climate change research. While establishing no epistemological or educational reason to distinguish the two, he reflects on the respective potential of *praxis* and *poiesis* in addressing climate-oriented research agendas.

In the final section, ‘Theorising an Earthy PhD’, the recurring concept of ecology draws together a range of theoretical perspectives on what PhD training is and could become. Chap. 12 is a contribution from cultural theorist, Ross Gibson, ‘Expert Not Specialist: Doctoral Ecologies for Focused Frogs and High-Flying Birds’. Gibson presents a wide-ranging essay, exploring the etymological ‘filigree’ of the PhD in experimentation, experience, knowledge, wisdom and its credentialing of holders to not only teach and instruct but also to take on major and complex issues, such as the current environmental emergency. Drawing on the work of Dyson Freeman, he imagines a curriculum to enable the flourishing of ‘focused frogs and high-flying birds’. His avian–amphibian model of the PhD graduate imagines an all-rounder, who can dig deeply into a specialisation *and* fly high enough to apprehend the broader landscape.

Chapter 13, ‘The PhD Revolution: World-Entangled and Hopeful Futures’, higher education scholar Søren S.E. Bengtsen provides an alternative conceptualization, and narrative, of the current state and aim of researcher education and the PhD. Arguing in contrast to the commonly held idea that the PhD foundation is eroding, he instead points to a powerful PhD revolution from within researcher environments, spreading throughout social and professional domains, and reaching crescendo in societal and cultural contexts. He argues such institutional optimism is crucial if the PhD should itself be filled with hope and find the courage to engage with climate issues and other global challenges. The final Chap. 14, by Ronald Barnett, calls for the PhD to be re-situated ecologically. In ‘Re-situating the PhD: Towards an Ecological Adeptness’, Barnett extends the ecological beyond its customary associations with the natural environment, to emphasise inter-connectedness, systems, fragility, sustainability and humanity’s responsibilities for the world. In his words, ‘this new PhD would be a trans-disciplinary voyage of discovery, a wisdom-doctorate, synoptic and far-reaching, of societal and even global value, and yielding moments of large insight as well as personal self-discovery on the part of the student’. In this chapter, Barnett explores the nimble footwork required for institutions, PhD programs, supervisor(s) and students to become ecologically adept.

To conclude this introductory chapter, we wish to extend our sincere gratitude to everyone involved in this project in which our work as editors has been buoyed by wonderful conversations with contributors while reading and commenting on successive drafts of their work. Most of this was done while many of us were in COVID-19 lockdown in various parts of the world. Most notably, we owe thanks to the ‘Debating higher education: philosophical perspectives’ series editors, Paul Gibbs, Amanda Fulford, Ronald Barnett, and Søren Bengtsen, for supporting our proposal. We also wish to thank Lay Peng Ang, Springer’s Senior Editorial Assistant, for patiently and thoughtfully guiding us through the manuscript preparation and publishing process. We extend our immense gratitude to all of the volume’s contributors who have entered into the spirit of the book with enthusiasm and enriched our own thinking and understanding considerably in the process.

We are a long way from having all the answers, and this book is a long way from providing them. The idea for the book came out of a deep and strongly held conviction of the need to do something about the pressing problem of our time—the

climate-extinction emergency—via the PhD in which we are all variously personally and professionally invested. This volume has provided us with an opportunity to commence this conversation with some of our most respected and admired peers. The next step, for us at least, is to apply some of these ideas more concretely within our own institution, where there is already a strong appetite to engage meaningfully with the UN's Sustainable Development Goals and to orient graduate research education towards finding solutions for the great problems faced by the communities we serve. Working on this book has deepened our commitment to this mission and heightened our sense of urgency. As we argue in our own chapter, a different way of thinking about and doing PhDs is needed to meet the challenges we all face and if not now, when?

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