

Chapter 14

Resituating the PhD: Towards an Ecological Adeptness



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Abstract Ever since the dawn of its modern history at the start of the twentieth century, the PhD has undergone change as attempts are made to align it to felt needs of its times. And now, it may plausibly be suggested, the twenty-first century is presenting massive challenges which the PhD - in its present format - is entirely unable to address. A new framework is due, therefore, so as to resituate the PhD. Suggested here is an ecological approach, 'ecological' being extended beyond its customary associations with the natural environment, and seized upon for its suggestions of interconnectedness, systems, fragility, sustainability and humanity's responsibilities for the world.

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. Such a programme calls for personal maturity on the part of candidates but it calls also for nimble footwork on the part of institutions, as they allow the student to draw on resources from beyond his/her discipline. The institution, the PhD programme, the supervisor(s) and the student would all become ecologically adept.

Introduction

The modern doctorate had its birth essentially in two sets of circumstances, one to impart intellectual fire-power to a Germany intent – at the start of the twentieth century – on making scientific and technological progress and putting itself at the heart of a conflicted Europe and the other to enable the universities of the United States to become the modernising engines of a social and globalising revolution in that country (cf. Simpson 1983) However, in both places and far beyond, the PhD has since been colonised by a new world order, a summary aphorism for which is

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‘cognitive capitalism’ (Boutang 2011). In short, the doctorate has always served and continues to serve particular interests, and those interests have changed substantially. The doctorate continues to respond to external promptings and therefore – it may be judged – always has unfulfilled potential.

Against such a background, the plausible possibility arises that – as it might be put – the PhD is particularly ill-matched for its present and impending times. The twenty-first century is faced with massive challenges which the PhD, in its present style, is entirely unable to address. A new framework is due, therefore, so as to resituate the PhD. Suggested here is an ecological approach, ‘ecological’ being extended beyond its customary associations with the natural environment and seized upon for its suggestions of interconnectedness, systems, fragility, sustainability and humanity’s responsibilities for the world.

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Being Wise Before the Event

In the early incarnations of the PhD, especially in continental Europe, the general aim was to say something of significance that stood on its own two feet, independently of its author(s). This orientation was especially present in PhDs in the social sciences and the humanities, where it was a space in which one advanced a thesis that was not just original but was of such largeness that it could take on a field, critique the recognized authorities and even sketch out a new field. Such a conception of the PhD lent itself to immediate publication as a monograph, a practice that still holds in some universities in the northern parts of continental Europe. And a doctorate dissertation of this kind could pave the way for an early professorship, a professorial inaugural lecture of substance and a trajectory towards becoming a luminary in a field, and possibly even forming a new field.

We might say that this form of the PhD contained an inner orientation towards being wise *before* the event. This PhD engaged with the literature and did so head-on; that was much to the point. But then it went on from there to establish a thesis in its own right, a thesis that looked ahead, determined not merely to set up a new position but to take-off into the future. The dissertation was a launch-pad, providing energy for a high-velocity and steep personal trajectory and for a relocation of an intellectual field.

Admittedly, such a dissertation called for a large element of hubris. The PhD candidate was required to possess a high-blown self-belief. The doctorate viva, in turn, was expected to be a high-level conversation with intellectual peers. It was understood that the candidate, having delved deeply into a very particular issue, was

an expert – if not *the* expert – in the examination room. In the continental European tradition, where the final part of the examination was – and often still is – a public event, the occasion was a space for the successful candidate (for there was no doubt as to the candidate's success) to display her or his brilliance and formed the first step to a notable career, in which the student-as-academic would play a part in forging the whole field, if not actually creating a new field. As suggested, it was a display of wisdom before the event – of one's inaugural professorial lecture, of a forthcoming development in the intellectual field, of one's future relationships with the leading others in the field and so on. It was a foretaste of what was to come.

Of course, the stakes were very high. In taking on the authorities in a field, the candidate was subjecting her or himself to academic risk. An examiner could easily take umbrage if his (it was normally a 'he') favoured framework – or even his own framework – was being critiqued; and instances are not unknown of doctorate theses being rejected in such circumstances, only for the resourceful candidate still to make their way successfully into academic life and even to turn the failed dissertation into a groundbreaking book.

Doctoral candidates who held such a conception saw themselves as in the circus ring, riding two horses at once, and with hurdles in the way. Yes, the hurdle of the doctorate examination had to be surmounted, but the prize was well beyond that, in setting out an intellectual agenda for at least the next decade and possibly for a lifetime. The dissertation was crafted as the draft of the book to come. This was a true wisdom, with a perspicacity to put one's studies into a wider understanding where it had a contribution to make, even to the whole world.

Being Skilful After the Event

All that has changed. From being a matter of being wise before the event, the PhD has become a matter of being skilful *after* the event. Now, the dissertation is a vehicle for the demonstration of one's already-attained research skills, those skills being required to fall into a certain pattern. The very phrase 'writing up one's research' is testimony to the text being but an aftermath of the real event, the field-work and its analysis and the surrounding skills. It is the research skills that count; the text is a mere afterword. Once this PhD has been assembled, with its bricolage of parts, never again in the whole life of the candidate will something so arcane, and – on some estimations – so ridiculous, as an 80–100,000-word text be attempted. And so we are witnessing increasing efforts to move to a 'PhD by publication', where the PhD-as-semblage becomes overt.

It would not be true to say of this kind of dissertation that it lacks an architecture. On the contrary, it exhibits an overtight architecture, and in three senses. Firstly, the components and their sequence are well-known and can be anticipated, even before the first page is opened: literature review, methodology, data collection, data analysis, discussion and closing reflections. No wonderment in embarking on a totally new journey and little room for serendipity or spontaneity here. Secondly, the parts

of the journey are kept tightly bounded. To use another metaphor, it is like encountering a mansion: it has an edifice and one that may, at first glance from the outside, seem impressive. The weighty tome sits there. However, venturing inside, the rooms turn out to be quite separated: no open-plan here. There is little opportunity for interchange between the rooms. There may even be people in the rooms – in the literature review, in the data analysis – but their communication is theirs alone. The sections of the dissertation stand separately from each other and so lend themselves to being converted quite readily into discrete papers in the literature.

Thirdly, the rooms are nowhere near equal in size. The rooms marked ‘literature review’, ‘methodology’ and ‘data analysis’ are sizeable. In a 300-page dissertation, the first two alone – which might have been thought to be preliminaries to the main event – may account for 150–180 pages. Noticeable, however, it is that the discussion section – where a thesis as such might have been identified and substantiated and allowed to flower – is quite truncated; it may amount to just twenty pages, if that. This deficit is entirely explicable, which I come onto below, but a brief reflection on the separate elements is in order here.

The lengthy literature review – aided by modern search engines – enables one to demonstrate that one has at least noticed several hundred papers in the relevant literatures that are contiguous with the topic of the dissertation. The length of the bibliography, accordingly, itself becomes a key element in the assessment of the dissertation. It is virtually impossible now for a doctorate dissertation to be passed by the examiners unless it contains a bibliography of some hundreds of items.

More importantly, though, the voluminous nature of the material being crammed into the literature review at best represents an opportunity to put on a show of a kind. Sentences follow each other with haste, each one ending in a bracketed string of references, leaving one to scratch one’s head as to the part being played by the works cited to the sentence that one has just read. Often, one searches in vain for any connecting tissue even within a paragraph – which may extend to twenty-plus lines or even a whole page – let alone across paragraphs. The text skims across huge concepts and ideas, and as it refers to luminaries as if they were close acquaintances. A pretentiousness accompanies the narrative flow, inevitable given that the text flows across manifold sources. There is little attempt to delve deeply and authoritatively into a single issue and seriously to critique an oeuvre and even less attempt to expose tellingly any fundamental conflicts that there may.

Typically, the literature review is followed by a lengthy statement on methodology. Characteristically, what is proffered is a mix of a mini-textbook on methodology in the social sciences and an autobiography, describing the candidate’s background and personal journey in pursuing the study. What one sees all too rarely is a careful and methodical laying out of the strategy adopted, with a tight relationship both to the key texts and to the topic at hand. Usually, a group of research questions is set out. Much less often is there a ‘methodology’ that sets out the logic flowing from such questions: ‘Given these research questions, which stratagems suggest themselves and what are their advantages and disadvantages?’ And ‘how and why might a particular body of literature come into play, in burrowing into the matters to hand?’ After all, the literature review has been dispatched in the previous section and can be left behind. As a result, the literature review and the methodology

stand proudly independent with little or no interchange between the two, reflecting – as they do – discrete sets of skills, of information extraction and processing and of data generation and analysis.

Tellingly, here, the candidates take pride in aligning themselves to a ‘constructivist’ methodology. This is crucial. The term ‘ontological’ may be used, even with relish, but with an inverted meaning from its proper sense. Instead of referring to considerations of the way the world is, the term is used to refer to the personal – and therefore changing – subjectivities of the interviewees. The idea that there might be a world independent of one’s – or people’s – constructions of it is not now permitted. (This has serious consequences, as I observe immediately below.)

There then follows a ‘data analysis’ section; but that phrase is overblown, for we receive lots of data but rather little in the way of analysis, despite the graphics and even photographs provided. Little attempt is made to identify the large themes that the data might open out to, themes that might connect the dissertation to even larger themes in intellectual life, still less in the wider world. Sub-headings emerge from the ‘coding’, and the data may be nicely arranged thereunder, but all too often the data are left to speak for themselves. Snippets – or even large portions – of interviews are presented with little or no following commentary, where one might have hoped for at least some allusions to be made to wider issues.

Moreover, despite the ‘discourse analysis’, opportunities are frequently missed even within the terms of the research contract, so to speak. The data are assumed to speak largely for themselves, the actual words of an interviewee unaddressed: Why this word? Why this phrasing, why this nuance (in the words of the interviewee)? What might they hint at? What might they be representing or even hiding? How might this word or this phrase link to the work of scholars in the literature review? The questions are not raised, and the data roll on, their resources largely unmined.

There is a pattern here, which follows from the constructivist approach now in vogue and which can be seen both in the fieldwork and in the data analysis. Awkward questions are never put to interviewees or to the transcripts that ensue. Interviewees are rarely if ever challenged: ‘Why would you say – or think – that?’ And that an interviewee says one thing on one page in the dissertation and a contradictory thing on another page goes unremarked. The possibility that an interviewee is deliberately lying is never entertained. For such critical stances on the part of our student-as-interviewer would precisely bring onto the horizon a world independent of (the interviewees’) perceptions. The doctorate thesis is marked by a very limited level of criticality: a descriptive account of the interviewees’ perceptions is felt to speak for itself. It is their world – as they have constructed it – that is all that matters.

The End of the Thesis

With it skimming so effortless across literatures and data, the text comes to exhibit an argumentative thinness, and this has a number of aspects. Firstly, there is a thinness in the substance of the central issue being attacked if, indeed, a central issue has been identified with precision. The sense that the dissertation lacks a central and

very specific issue is given weight by the abstract, where one may look in vain for a sentence that pinpoints the key claim being made, whether it be an empirical finding, a concept being articulated, a theoretical position being taken, or a policy being advanced. Bets are hedged in the abstract, which so often contain the non-specific verbs of 'explore' and/or 'discuss' ('This thesis explores such and such ...' or '... discusses x and y.') The idea that a doctorate dissertation should stake out a definite thesis is now no longer held.

To forge a definite claim – or thesis – such that it lies at the heart of a text would place three demands on the candidate. Firstly, it calls for capacities to reason forensically, to home in on a multitude of data, evidence, ideas, theories, interpretations and positions, many of which will be pointing in different directions. To put it simply, this calls for not just the capacity but also the willingness to think; and thinking is hard. John Henry Newman, theologian, poet and scholar (who produced a vast body of work, including (1976) 'The Idea of a University', perhaps the most famous text in the English language on the matter and, for many, the most eloquent), spoke of 'the bodily pain' that writing caused him; such pain – we can reasonably surmise – arising from his stoic and tenacious disposition to think through matters so as to write with a rare clarity and beauty (Faber 1954). Most – in England at any rate – will understandably shun such cognitive discipline. Bertrand Russell is alleged to have remarked that 'Most of the English would sooner die than think', and then he added 'and most of them do'.

There is a second component in forging a thesis that is intimately connected with human virtues. To set out a thesis with such sharpness that it can form a single sentence within the abstract, so that the reader is in turn clear as to what the candidate is wanting to put into the world, calls for courage. It was also said of Bertrand Russell that he would never hit a large array of notes in the hope that one of them would carry the day (Hampshire 1971). He would simply put his finger on one note.

To write with such clarity requires a willingness to put oneself forward, to expose oneself, and to run a degree of risk. The abstracts of this kind of thinking – and, indeed, writing – will baldly state a thesis (as do the best abstracts in the academic literature). And the propositions in the text will not be hedged around with qualifiers or with scare quote marks that set the text off at a distance from the writer, a text that then becomes unduly semantically dense. It has been forgotten that while it is easy to make the simple complex (and there is characteristically much talk in dissertations of 'complexity' and of situations being 'complex'), it is much more difficult to make the complex simple.

A third element that is required for the forging of a thesis is that of imagination. By 'imagination' is meant a preparedness to stand aside from the array of material that the student will have assembled over several years of study and to see into and around it in new ways, to glimpse possible paths, to open it out, to grab hold of intriguing words and make something of them and turn them into concepts that shed new light on the material to hand, to discern connections with large issues not just in the immediate field but more especially in contiguous fields and to place it all in the widest vista. To deploy this kind of imagination is to leap into spaces even unconnected immediately with the material to hand and which yet, carefully treated,

can help to draw the material into an entirely new space. It is to bring forth possibilities, even undreamt possibilities. This imagination is disruptive (Zizek 2008: xxv).

Is all this too much to ask of our PhD candidates? Actually, it is precisely what we ask, or used to ask, but have forgotten. For the PhD is, or should be, not merely an original contribution to knowledge but should be making a significant contribution to knowledge. The logic of this recollection is that the imagination is an absolute necessity. The only way to make a significant contribution to knowledge is to leap aside from the given – from the literature, from the immediate data, from the given frameworks – and to move into a different space and glimpse matters anew. The mind has to be cleared if new framings are to form.

The desk itself has to be cleared, literally and metaphorically, so that the student becomes a writer, giving herself the frightening space of using her own resources to find words, and to select words, from the millions in her language. And that depends upon a yearning to glimpse new orderings in the world. The PhD has to become a form of poetry, in its careful attention to detail while bringing forth an original creation that offers new insights into the given, the ready-to-hand (Heidegger 1998).

As an examiner, on several occasions and with a smile, I have shared with candidates – during the viva voce – the reflection that, in the English language, the word ‘thesis’ has come to have two meanings. On the one hand, it refers to a dominant claim that a scholar is putting into the world. On the other hand, it refers to a sizeable and physically weighty text (usually sitting on the table in front of the student in the examination room). Generally unnoticed, the second sense of ‘thesis’ has come to supplant the first sense, such that the first sense has now fallen by the wayside. The original sense of a thesis as constituting the core claim of a text is now largely not understood at all. (More than once I have been asked: ‘What do you mean by “thesis”?’) This discursive switch – for that is what it is – points to a fundamental change in and around the PhD in the social sciences.

It can be observed – without self-contradiction – that the thesis has come to lack a thesis, not only as a contingent fact but also as a conceptual fact. This extraordinary shift is quite understandable, for a thesis – in the proper sense of the term – is no longer required of the PhD. What is required is that it signify the possession of a set of discrete research skills.

Explaining the Transformation of the PhD

The argument here so far can be quickly summarised. The doctorate – at least in the social sciences and societally oriented humanities – has undergone one major transformation and is now in need of a further transformation. The shift that the PhD has witnessed can be easily stated. It is a shift from a conception of the PhD-as-scholarship to the PhD-as-a-set-of-research-skills.

In its first incarnation, the PhD was understood to be the process in which a person, already in possession of one or more degrees (at Bachelor’s and/or Master’s levels), came to demonstrate that they had acquired the accoutrements of being a

scholar. This required a deep and critical reading of key texts, as well as taking on the epistemic virtues of perspicacity, courage, communication and pronouncement. The candidate would be saying something of significance, in which the dissertation engaged forensically with other texts and staked out a position that was independent of those texts. This was scholarship in its foundational sense, namely a love of and a deep intimacy with texts (books even), but yet also demonstrating a capacity not to be consumed by those texts but to stand apart from them.

In its second incarnation, the PhD has become a vehicle of research skills, in which the successful candidate demonstrates the wherewithal independently to conduct research projects in the future. As such, new criteria come to the fore. There is a definite section termed 'literature review' in which candidates demonstrate the ability to drive search engines, compile a bibliography and glide, seemingly effortlessly, over the ground of the territory in view. There is a major section termed 'methodology', in which the candidate shows that they can set up a research project and provide a justification of the approach taken. There is a section providing a data analysis, containing an assembly of data and inferences drawn from it. And there will be some brief closing remarks, demonstrating self-serving meta-cognitive abilities in reflecting on the work having been undertaken and the student's personal journal.

It is irrelevant now that this PhD contains no thesis for that is not what is being sought, actually, the contrary. After all, thinking – and that is what the formulation of a thesis as such requires – is 'dangerous' (Deleuze and Guattari 2013:41). This PhD is nothing other than an exhibition of discrete research skills and demonstrates the candidate's capacities for conducting research unsupervised – wherever that might be – and for limited self-reflection.

This shift – from PhD as scholarship to the PhD as research skills – is not happenstance. Over the last 40 years or so, across the world, higher education has been subject to massive forces acting on it. The terms conjured in depicting these forces are familiar enough and include neoliberalism, global economy, the knowledge economy, marketisation, private benefit and employability. Yet other terms, at a deeper analytical level, include financialisation, algorithmic capitalism, knowledge capitalism, bio-informational modernity, cybernetic capitalism and cognitive capitalism (Peters 2013). Of these terms, I prefer cognitive capitalism and will use it here.

The term 'cognitive capitalism' is primarily that of Moulrier Boutang (2011) (although others have also promoted it). Boutang offers 'a definition of cognitive capitalism' (p. 56–59), viz. 'a mode of accumulation in which the object of accumulation consists mainly of knowledge, which becomes the basic source of value. ... Labour power does not disappear, but it loses its centrality in favour of a cooperation of brains in the production of the living by the living, via the new information technologies ... The mode of production ... is based on the cooperative labour of human brains joined together in networks by means of computers'.

Boutang suggests that – following mercantile and industrial capitalism – the world is witnessing a third stage of a 'globalised world economy'. This world economy is exhibited in 'fifteen markers' (p. 50). Among these are 'The weight of the

immaterial', 'innovation present in interactive cognitive processes', 'a socio-technical system characterised by information and communication technologies', 'the appropriation of knowledge' (from Castells), 'the network society' (from Levy), 'cooperation between brains' and 'interconnected digital networks', 'knowledge goods' and fluid working patterns (pp. 50–56).

Given this evolving economic-epistemic order, and given too the incorporation of universities into state-steered systems of higher education, the shift in the PhD identified here is explicable. Armed with Boutang's suggestions, we can hypothesise the following. Within cognitive capitalism, the PhD has become part of 'a mode of accumulation [that] consists mainly of knowledge, which becomes the basic source of value'. The PhD fosters 'a cooperation of brains in the production of the living by the living, via the new information technologies ... joined together in networks by means of computers'. Accordingly, the PhD has become part of 'a globalised world economy' and is testimony to 'the weight of the immaterial' oriented to 'innovation present in interactive cognitive processes'.

In short, the PhD has been repositioned over the past 40 years or so through its becoming conditioned by huge global forces. This was inevitable, for universities have been swept up in the formation of higher education systems, themselves incorporated into the emerging world epistemic and bio-informational economy.

Towards an Ecological Adeptness

The PhD is evolving. We have identified two stages – the stage of scholarship and the stage of self-regarding information skills; and the suggestion here has been that this present stage of egoistic skills is totally inadequate for the present and foreseeable future. The question is this: can a further stage be glimpsed?

Let us backtrack for a moment. While Boutang's theory is powerful, there are two weaknesses in it; and the weaknesses offer avenues of possibility. One weakness lies in the changes in persons that accompany the formation of cognitive capitalism. Boutang mentions 'bio-productive' aspects of invention-power', 'living labour' (p. 54) and, as noted, 'the production of the living by the living', a 'bio-power [that] has made it possible for humanity to produce the post-human' (p. 150). (Boutang has in mind instances of 'fashioning the human cyborg' and 'the production of [the] population' more generally.) There is, therefore, some recognition of human being as such being implicated in the formation of cognitive capitalism.

The weight of Boutang's analysis, however, lies in a forensic analysis of the structural aspects of the new order, especially in its economic and knowledge systems and their intertwining. Much less attention is paid to the formation of human being and to the potential role of universities. There is mention of universities, but it is confined to universities as quasi-corporate knowledge laboratories, run with the 'same intensity and importance as ... businesses and enterprises' (p. 151) and their ambiguous relationship with the labour market (p. 154). The question here is this: in this 'production of the living by the living', are there not new opportunities in this

epistemic order for a completely new conception of the PhD that expands both the student and the link between the doctorate study and the wider society?

There is, however, a further key idea in Boutang's work that is helpful here, that of the pollination society (p. 110 et seq). Although not treated to a specific definition, the idea seems to be that of the fact that, mainly by digital means, individuals are now giving freely of their labour in an infinity of ways. Unpaid but of immense value, this cognitive labour is bringing about a completely new networked economy. (The freely given time of contributors to Wikipedia is the stand-out example typically given here.) However, this concept of pollination deserves to be pressed further, not least in the present context.

We may observe that the modern doctorate is doubly implicated in this pollination. Firstly, the doctorate was essentially a guarantee of a path into the academic life (especially since when it was quite rare in the social sciences and humanities), and now it has proliferated such that PhD holders proceed mainly into professional life in the wider society. Secondly, as noted, the PhD is a means of developing information generation and processing skills, and so doctorate holders can be counted on as super-pollinators.

A post-human world beckons here, in which individuality is lost as human being becomes extensions of, if not actually incorporated into, the digital world. Some, such as Michael Peters, see here the alternative possibility of a 'knowledge socialism' (Peters and Besley 2006), in which knowledge is both produced by all and is freely available to all. On this view, presumably, not only would the doctorate dissertation be made freely available in universities' research repositories and other open access platforms, freely available and outside publishers' fire-walls, but also doctoral students would be encouraged to take advantage of social media to broadcast their ideas and findings to the world at large.

However, much larger possibilities for the PhD are opening here; indeed, much larger responsibilities. We have charted in this essay a shift from PhD as scholarly knowledge to the PhD as self-regarding cognitive labour, in which the student demonstrates the capacity for productive epistemic skills (and for limited self-reflection on those skills). But a combination of elements now present open the possibility of a fundamentally different, and therefore a third, stage in the PhD's evolution.

The elements are these: an interconnected world, the digital age with its opportunities for both creativity and mass communication, the release of doctoral students into their own resources, the porosity of epistemic borders (across disciplines, professions and the world of work), a worldly interest in the total environment and a drive for creativity and 'innovation'. Opening here, therefore, is a new age for the PhD, which we can justifiably term the ecological PhD. By 'ecological' is meant here not a reference to the natural environment as such but to embrace the total world as a collectivity of collectivities. This would elevate the PhD itself into a super-pollinator.

Now, the PhD has to be seen as a node (to use a term from Castells (1997)) in an entire web of networks. To see it merely as situated in networks of scholarship (Mode 1, as we might term it (Gibbons et al. 1994)) or, now, in networks of pragmatic informational-economism (Mode 2, we might say) is to diminish its

possibilities and its responsibilities. Recognized or not, the PhD is now situated in a multitude of ecosystems, for example of knowledge, learning, social institutions, the economy, persons, culture and the natural environment itself. Moreover, again whether recognized or not, not only is the PhD influenced – if only tacitly – by each of these ecosystems, but it is intertwined with them.

Here, the personal aspect takes on a heightened dimension, for PhD students will be engaged in forging their own learning ecologies (Barnett and Jackson 2020). Such students are characteristically encountering the world in a variety of ways and are taking their own personal learning journey. Each student engages with many if not all of the ecosystems just identified, of knowledge, learning, the natural environment, social institutions, persons, the economy and so on (Barnett 2018). Guattari's (2000) 'three ecologies' was unduly parsimonious for there are many more ecologies circulating in the world and which advanced study – such as the doctorate – should heed. Admittedly, there are nice questions as to whether – across the many ecologies just picked out – a hierarchy of ecologies can be discerned (is the natural environment the capstone ecology as it were or does the knowledge ecology retain its dominance, albeit now conscious of its responsibilities to the total world?). But these questions must wait for another day.

In the process, as their study unfolds, so doctoral students – embarked on this kind of programme – would be learning in its fullest sense. Their sheer being as persons is pulled this way and that as they venture forward. Their networks – in the senses implied here – accumulate across pertinent ecosystems and become more intricate. This learning journey is always on the move, always revealing new sights and always testing the student at the edges of their human capacities, not least as ethical beings.

Consider the matter of the Coronavirus. It is evident that the Coronavirus implicates virology, biology, medicine, the human body, statistics, engineering, health policy and organization, transnational relations, culture, zoology, agricultural practices, food distribution, human rights, animal rights, the state and its relationships with the polity, societal communication, psychological responses to aloneness, well-being, the matter of community, being a professional, the role of public intellectuals, decision-making (at personal, family, organizational, national and world levels), concepts of citizenship and fairness and much else besides. It follows that wherever a PhD study enters this maze, so it could branch into any of the others. The Coronavirus is a wonderful – in a bizarre sense of 'wonder' – example of the networks and their potential for different modes of experience to which Latour ((2007), Latour et al. (2011)) has directed our attention.

A Personal Journey

We observed earlier that, over recent years, the personal dimension has radically entered the PhD. The first-person pronoun form of propositions – 'I believe', 'I think', 'I decided to do x', 'I learnt that' – proliferates to such an extent that the text

has become an autobiographical space (whether or not an autoethnographic methodology is deployed). The PhD is now a place for interiorising in public. The text can stray towards solipsism, such that we end up having much insight into the student's learning biography and rather less about the world. In the process, Descartes' self-serving cogito – 'I think, therefore I am' – has been weakened even further into 'I act, therefore I am'.

In contrast, the ecological PhD – as understood here – does not abandon the sense of it being an unfolding personal learning journey, but it looks out to the world. Of course, a single PhD cannot and should not attempt to traverse the whole world; a degree of reticence is required.

In the wake of the ecological turn in social theory, 'relationality' has become a favoured term; and that is entirely legitimate. But care should be taken so as not to reach for the term in facile ways. In an interconnected world, in a world in which no entity and no concept stands in its own ground (Harman 2018), the PhD should demonstrate not merely a sensitivity to interconnectedness but also a way of revealing a pertinent set of interconnections. This would import a high seriousness into the PhD, that it should scrupulously peel back coverings to the world, so as to reveal in careful detail a little of its interconnections and their complexity and, indeed, their supercomplexity (Barnett 2000).

This would be a personal 'deep ecology' (Plumwood 2002). Much like the images of moving fractals, with their mesmerizing branching patterns, this is persons as unfolding webs of complexity. The pattern may not feel like a pattern to the individual student – indeed, it may be more like trauma, for a pattern can only be discerned post the event, looking back after graduation. (No wonder that the study process typically generates much anxiety.)

Such a PhD would be accomplishing much. It would reveal a set of particulars within an intellectual field (much as in stage one), and it would call for sophisticated research skills (as in stage two), but, now, it would reveal something of the pertinent ecological territory and would argue a definite thesis. To bring this off, the student would be immersed in the matter to hand, seeking to reveal its intricacies, but would also stand off from it and reveal something of the forces, settings or discourses acting upon it. The fragility of the object in question would be revealed but also its potentialities. A study of this kind would constitute a profound learning journey, for the student would come to sense him or herself in a very wide context and would encounter him or herself anew. If wisdom contains a capacity to stand off from the world and oneself, and to understand oneself and the immediate sense data in the widest context, then this PhD would be a journey into a wisdom-for-the-world. (cf. Maxwell 2014).

The PhD would become, thereby, 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 by the student. Such a programme calls for personal maturity, but it calls also for nimble footwork on the part of institutions, as they allow the student to draw on resources beyond the immediate discipline and also encourage a spirit of epistemic generosity. The institutions, PhD programme, supervisor(s) and student(s) would all become ecologically adept.

Conclusion

The doctorate has been evolving for 900 years, serving as an emblem of the highest function of the university as differently understood in each era. In the Middle Ages, it denoted the right to teach. In subsequent centuries, it marked a lifetime of scholarship. In the nineteenth century, it began to be associated with original research in an intellectual field, a practice solidified through the twentieth century as research-favouring universities developed and as PhD programmes were established. And then, in the second half of the twentieth century, a fundamental shift occurred as the PhD came to mark not only the possession of research competencies but of research capital. Now, attaining a PhD demonstrates to the world that one can go on contributing to the informational capital of the world.

As the twenty-first century gathers pace, a yet further stage in the evolution of the PhD beckons. The world is interconnected; that has become a truism. But we should go further. The world may be understood as a heterogeneity of ecosystems, swirling in, out and across each other. To study and to undertake research in any field is to enter this ecological messiness. And so from the PhD as scholarship through to the PhD as cognitive capital and now to the PhD as ecological adeptness. This PhD – of the twenty-first century – would be a space for deep and incisive study of a phenomenon or entity or situation but crucially would place that study in its wider context. It would show how relevant ecosystems – for example of knowledge, social institutions, the natural world, the economy, persons, culture or of learning – bear in on the object in question. The Coronavirus crisis is but an example. A study within the field would naturally open out into any of those ecosystems.

This ecological PhD would not leave behind its former incarnations. On the contrary, it would incorporate them and build on them. It would call for deep scholarship and research capability and would provide working capital for the wider world, not least as it would reveal something about the interconnectedness of every entity in the world. Moreover, far from being an exercise in in-dwelling, where the student folds in upon him or herself, this PhD would open out into the world. It would display something of the intricate and often fragile interdependency among the infinite entities that constitute the world. And this PhD would contain a thesis, and a thesis about the world at that. This would reconstitute the PhD as a learning journey into a state of wisdom, offering foresight and even a wonder in the world. It would be a PhD for the world.

Admittedly, all this may be too late: the world may be fast – much faster than hitherto thought – approaching its end, and the proposals here may constitute a feeble gesture. But if the university is to be an active participant in striving for a better world – rather than a contributor to its degradation – turning the PhD towards an ecological adeptness has surely to be a necessary component of such activism.

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