

Promotion of Excellence in Learning and Teaching in Higher Education (PELTHE) final report



Reframing the PhD for Australia's future universities

Final report, 2018

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We especially thank the students and staff who agreed to be interviewed about their PhD experiences, and those who participated so generously in the discussion workshops held in four Australian cities in October 2017.

Simon Barrie

February 2018

List of acronyms used

| | |
|-------|---|
| ACOLA | Australian Council of Learned Academies |
| CV | curriculum vitae |
| NISA | National Innovation and Science Agenda |
| OLT | Office for Learning and Teaching |

Executive summary

This project addressed the role of the PhD in preparing the academic workforce of the future, especially in relation to higher education teaching. It is a direct response to the key recommendations contained in the Office of Learning and Teaching (OLT) report by Probert (2014) on the relationship between current forms of doctoral training and the demands of academic work, and particularly the work of university teaching, which has been subject to remarkably little scrutiny. It pays particular attention to the preparation of doctoral students for careers in academia, but it does so in ways that will also better prepare doctoral students for careers in industry, and other areas of employment.

A new national conversation about the Australian PhD is sorely needed – one that takes as its starting point the research ‘heart’ of the PhD and, in so doing, attends to the entire learning experience as an exercise in curriculum design. By starting with the view that the doctoral curriculum as a whole should offer a better pathway to academic practice and the new research needs of industry, and that ‘stewardship’ offers a means to achieve that end, the PhD becomes reimaged as a vehicle that holds research and teaching together.

Stewardship, as a way of supporting a contemporary framing of research, is an idea borrowed from the Carnegie Foundation (Golde, 2006) and argues that supporting research students to be ‘stewards’ of their discipline would mean that:

... [a] PhD holder should be capable of *generating* new knowledge and defending knowledge claims against challenges and criticism, *conserving* the most important ideas and findings that are a legacy of past and current work, and *transforming* knowledge that has been generated and conserved by explaining and connecting it to ideas from other fields. All of this implies the ability to teach well to a variety of audiences, including those outside formal classrooms. (p10)

While these three facets of stewardship preserve disciplinary learning at the heart of the PhD, it becomes clear that the education of Golde’s (2006) ‘steward’ promises a set of doctoral learning experiences that shift in intention, structure, pedagogy and educational outcome. As a consequence, the core learning activities and experiences that constitute the PhD curriculum – (1) the research project, (2) its supervision, (3) teaching and research skills development and (4) the disciplinary community the doctorate occurs in – must also become reframed by the integrated nature of disciplinary stewardship. Importantly, in this reframing, development of PhD students’ teaching capabilities is no longer bolted on to the main research project; it is integrated in all aspects of doctoral learning.

One of the aims of this project was to provide resources for a different, academic-led, sector-wide conversation about renewing the PhD as a pathway to academic practice. The five appended briefing papers provide both background and detail on a proposed new

direction for future development of the Australian PhD. A summary of resources to inform three topics that might be presented for university-wide discussion is included below.



Does the current PhD meet the needs of students intending to embark on an academic career? Using the curriculum idea of the four PhD learning spaces (research project/thesis, supervision, the intellectual climate, and courses, workshops and programs) briefing paper 3 describes how the research elements of the PhD can contribute to ways of thinking and practising related to teaching and teacher development. Illustrative examples are provided, and include PhD students designing an undergraduate research ‘teaching’ project for undergraduate students drawing on an aspect of their own research project and implementing this by mentoring the student teams, in collaboration with fellow PhD students under the supervision of staff in the department. The examples in briefing paper 3 illustrate the extent of the under-utilised opportunities to develop teaching practice within existing familiar researcher development practices.

What is stewardship and how might this idea be used to frame a PhD with a broader set of outcomes more suited to the realities of today’s research workforce? Golde’s (2006) three facets of stewardship – generation, conservation and transformation – are presented in briefing paper 2 and applied in briefing papers 4 and 5. Together these papers provide both a justification for re-configuring the PhD curriculum towards a stewardship outcome, and examples of how that might be achieved. For example, in the case of supervision, the student and supervisor might be active in co-designing and negotiating the student’s learning experience through the PhD. The conversation takes into account the student’s personal, professional and future career aspirations, the supervisor’s institutional responsibilities, the department’s requirements and available resources, and the kinds of activities intended to develop the domains of stewardship. This example illustrates one way that supervisors could shift current thinking and practice to incorporate more personal, moral and ethical development, more conservation of the discipline, and transformation of research knowledge in relation to policy while maintaining a focus on the core research ideas of the PhD.

How might PhD candidature milestones be refigured towards meaningful learning directed towards meaningful outcomes, authentically grounded in actual research activities, and be practical and manageable? For students and many supervisors, milestones are seen as bureaucratic exercises that are largely unrelated to the sort of meaningful learning that should be embodied in the PhD. Briefing paper 5 and the following table provide a framework for enacting a different PhD intention in milestones. In this framework the first step of such a reframing is driven by a clear intention to shape how milestones are put to work. The framework proposes that milestones in the first stage of candidature might focus on supporting students in preparing and planning for their doctoral learning journey. In the middle stages the focus might be on supporting the students’

engagement with the intellectual community. The final stage might also be supported with a broader array of milestones that focus on supporting students in articulating and building on the outcomes of their candidature.

A framework for enacting PhD intentions via milestones

| Diverse realities of work | Facet of stewardship | Stage 1 PLAN | Stage 2 INTELLECTUAL COMMUNITY | Stage 3 OUTCOMES |
|--|----------------------|---|--------------------------------------|-----------------------------------|
| <i>Intentions that might reframe the PhD</i> | | <i>Artefacts/documents that serve as milestones</i> | | |
| Academia | Generation | Individual learning plan | Research communications strategy | Internship report |
| Industry | Conservation | Confirmation of candidature (research proposal, 'application' possibilities, etc.) | Research impact strategy | Thesis artefact |
| Community | Transformation | Project management plan and budget | Discipline engagement strategy | Research contribution seminar |
| | |  <i>Individual negotiated learning plan directs learning over the candidature</i> | Engagement and intellectual climate | Becomes a career development plan |
| | |  <i>The artefacts are housed in a portfolio/website</i> | | |

If milestones shape both the intentions and outcomes of doctoral learning, they provide yet another entry point for reframing of the PhD. In a context where PhD graduates cannot rely on the academy as their main source of stable employment and where knowledge is being produced outside the academy in ways that are also changing universities, there is a very real case for questioning how the PhD's current design and structure prepare students for the reality of their future employment. The task of re-imagining candidature milestones is one response to the complexity of such a challenge.

This project has involved engagement across states, with supervisors and students, and members of academic research committees. It has made use of resources in a variety of ways, redesigned milestones in considering how the PhD and students' learning experience contributes to the knowledge network in Australia. While the outcomes represent a paradigm change for PhD education, they also offer a blueprint for new ideas about embedding employability preparation more generally.

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1. Introduction and background

This report is in the form of a ‘thesis-by-publication’. During the project, five briefing papers were produced (Appendices D–H). Chapters 3–8 of the present report focus on an introduction to, and integration of, those papers.

This project addressed the role of the PhD in preparing the academic workforce of the future, especially in relation to higher education teaching. It is a direct response to the key recommendations contained in the Office of Learning and Teaching (OLT) report by Probert (2014) which took the Australian Higher Education sector to task, noting that ‘the relationship between current forms of doctoral training and the demands of academic work, and particularly the work of university teaching, has been subject to remarkably little scrutiny’: p1. It pays particular attention to the preparation of doctoral students for careers in academia, but it does so in ways that will also better prepare doctoral students for careers in industry, and other areas of employment.

Context

There has been a dramatic increase in the number of PhD graduates in Australia. In 2013 alone, 8236 students graduated with research higher degrees from Australian universities, a 31% increase since 2004 (6238 PhD graduates) (B Guthrie, pers. comm., 2014). In 2013, the Australian Government reported that 46% of the graduating PhD student cohort were employed in higher education institutions (Graduate Careers Australia, 2014). In short, higher education still represents the largest single employment destination for Australian PhD graduates. The striking growth in numbers of PhD graduates, as well as employer feedback about their career preparedness, has prompted considerable discussion about employability (Department of Innovation, Industry, Science and Research, 2011; Universities Australia, 2013). Until recently, that discussion has focused almost exclusively on employability outside of academia, noting a concern that the PhD research project, in its current form, is poor preparation for the broader research agendas of industry and contemporary society (ACOLA, 2012). More recent higher education reports are also suggesting that the PhD in its current form has an equally poor track record in preparing research graduates for the realities of employment in the rapidly changing environment of today’s universities (Coates & Goedegeburre, 2010; Probert, 2014).

An approach that enhances the PhD as preparation for both industry and academia is important for several reasons. First, both employment contexts need more from the PhD. Second, developing research students’ teaching abilities has been found to be important in nurturing their personal identity, and in broadening their subject knowledge and their discipline-based communication abilities (Harland & Plangger, 2004). Interestingly, students

know this too. Two-thirds of the doctoral students surveyed at Sydney University and Oxford University (Trigwell & Dunbar-Goddet, 2005) indicated that they felt teaching undergraduate students would help (rather than hinder) their future research. Third, many of the graduate abilities and skills that populate employers' wish lists – for example communication skills, capacity for empathy, collaborative skills, leadership of groups, interpersonal and problem-solving skills – are developed while learning to be a university teacher. It would be unusual to find a PhD student or supervisor who did not agree that both skilled teachers and skilled researchers (be they in industry or academia) require the ability to communicate complex ideas effectively and to support others to learn from those complex ideas in order to extend their own. Finally, there is a growing expectation in industry, government, and the broader community that, in order for research to be valuable, it must connect to the needs of society. As a result, research is becoming shaped and re-shaped by the end user, and technological advances are supporting the dissemination of research outcomes to a wider audience than ever before. The imperative for the PhD is clear: the research project, its supervision, supporting learning experiences and the environment it occurs in need transforming to better reflect and anticipate the demands on its graduates. The ability to communicate and transform knowledge is one of those demands, an essential component of a contemporary framing of research. It is also the way modern universities describe teaching: the communication of the discipline.

The need for a new approach to teaching development in the PhD

Probert's 2014 OLT report is the latest in a long line of international disquiet about the PhD's indifference to preparation for holistic academic practice (Brew, Boud & Un Namgung, 2011; Jepsen, Varhegyi & Edwards, 2012). More than 10 years ago, the Higher Education Funding Councils of England, Scotland and Wales commissioned a report that recognised that '[a] concentration on research training has not equipped PhDs to perform other faculty roles, especially undergraduate teaching' (Metcalf, Thompson & Green, 2002: p16).

The story from the perspective of current Australian research students echoes, somewhat unsurprisingly, the international concerns raised over the past decade. Most consider their PhD program to be effective in preparing them for careers in academic *research* (as they imagine it perhaps), yet many do not perceive it to be particularly effective at preparing them for other aspects of their academic role such as *teaching* or service, or indeed for careers in other sectors (Edwards, Bexley & Richardson, 2011). To date, there has been an implicit assumption that the PhD's focus on a 'research apprenticeship model' (Department of Education, 2014) has been sufficient as preparation for higher education researchers to be future members of the academic workforce. While the PhD program may be explicitly designed to equip graduates to conduct research as the entry point to academic work, what is certain is that fewer than one in five PhD students participate in any form of training for university teaching (Edwards, Bexley & Richardson, 2011). This is a disturbing statistic

especially as new PhD graduates are likely to find first academic employment as sessional staff, where university teaching will be the primary, if not sole, academic activity occupying their time.

The PhD remains the pathway to academic work, and teaching is undeniably a major component of that role for most academics. The 46% of Australian PhD graduates entering academic employment represent a large number of young, highly educated professionals entering their chosen workforce with little or no training or preparation for teaching – something one might argue is the most important and visible aspect of their work. Australian universities have acknowledged that the PhD does not prepare new academics for their work as teachers, and that these individuals require sustained opportunities for professional learning to cope with the challenging and changing demands of university teaching. It remains peculiar that although teaching is the lifeblood of universities, most aspiring academics receive little or no education for that important work within the curriculum structures or pedagogy of the qualification designed to prepare them for employment as a professional academic (Edwards, Bexley & Richardson, 2011). Precisely because of this, universities have tended to provide additional training in teaching for new academic hires in recognition that the PhD does not equip them for this essential activity.

By and large, universities do not need convincing that it is important to provide opportunities for PhD students to learn how to teach, not least because many form a large component of the sessional staff workforce during their studies. Many institutions have relied on familiar strategies to address the structural flaws in the doctoral curriculum in relation to career preparation for academic practice (Group of Eight, 2013). Almost all universities have moved to include some form of short ‘teaching course’ – part of the suite of ‘skills development’ courses on offer as an ‘elective’ component that sits alongside the PhD. Typically, this extra ‘teaching training’ ranges from two hours to one week in duration, and most are variations of the traditional ‘bolt-on course’ (e.g. an extra online module/workshop/short course).

There is little doubt that these institutional efforts have contributed many excellent resources intended to address doctoral candidates’ lack of teaching skills, yet data collected by Edwards, Bexley & Richardson (2011) indicate that these resources are not always well utilised and, on their own, are unlikely to deliver the required outcome. While the bolt-on approach to teaching development for research students is perhaps understandable given the primacy of research in the PhD, it is however unsustainable for students and institutions, given the funding constraints of strictly monitored completion times. It is impractical to extend the time required for completion to accommodate an additional separate curriculum for teaching, alongside that for research. To presume that the extra curriculum required can be accommodated within the current time available does not do justice to either the demands of learning to teach or the demands of learning to research.

Questions must also be raised about whether the bolt-on approach to teaching training in the PhD (ACOLA, 2012) is compatible with the desire for an integrated and holistic academic practice that holds teaching and research together as a distinctive scholarly endeavour.

There are many lessons to be learned about the efficacy of bolt-on approaches from the long tradition of higher education curriculum research on the limitations of 'stand-alone skills training' in relation to developing graduates' capabilities. A parallel to the current debate on the doctoral curriculum can be found in universities' early attempts to equip coursework graduates with the attributes and outcomes for the world of work (Barrie, 2004). Initial efforts to cover an ever-increasing amount of 'skills' content by adding 'skills' lectures/subjects have largely given way to a curriculum embedding approach that is reshaping learning to focus on 'discipline-based ways of thinking and practising' suitable for the (super)complexity of today's world of work. In considering the doctoral curriculum challenge of preparing the future workforce, it may be helpful to recognise that in all other areas of higher education, employment-led curriculum renewal has moved on from the initial (and unsuccessful) reliance on bolt-on approaches to what has always been at the heart of the curriculum – the learning of the discipline.

Despite many of these concerns being well known, universities are – with minor variations – continuing to rely on that same traditional bolt-on approach as the teaching preparation of Australia's future academic workforce. It seems extraordinary that Australia's higher education sector could continue to endorse such an impoverished approach to the preparation of its future academic workforce, relying largely on ad-hoc, generic 'skills training' that can amount to as little as two hours across the duration of the entire PhD, while largely ignoring the potential for learning about teaching arising from the 3–3.5 years of purposeful apprenticeship located in vibrant disciplinary communities.

2. Project aims

1. *Develop a new integrated framework and approach to thinking about the core learning experiences of the doctoral curriculum* – the research project, its supervision, students' participation in disciplinary communities, and professional learning about university teaching – so that it creates new opportunities for developing 'stewardship of the discipline'.
2. Offer a new way of reframing the core learning experiences of the PhD *by providing a means for universities to integrate their (current bolt-on) teaching and skills development strategies so that they become more effective than they currently are.*
3. Deliver a *different, academic-led, sector-wide conversation about renewing the PhD as a pathway to academic practice* through a new partnership with the chairs of Australian academic boards.

3. The PhD curriculum

The idea of a PhD ‘curriculum’ is emerging (somewhat uncomfortably) within the current conversations about the perceived limitations of the current PhD as a preparation for future employment. In this project, we use curriculum to provide a means to view and discuss the position of the learner. Curriculum can be primarily about the learner’s experience of the ‘what and how’ of teaching and, more broadly, encompassing the learner’s engagement with all aspects of the higher education experience – not just the experience of what is formally taught. A learner-focused curriculum can be seen as a site for contestation and learner identity formation.

Frazer and Bosanquet (2006) provide a helpful analysis of the range of understandings described by academics in their study in relation to Habermas’ knowledge-constitutive interests: the technical, practical (communicative) and emancipatory.

A technical curriculum interest focuses on structuring and managing objects and the environment. In these terms, the function of the curriculum is to define and control student learning. The outcomes of the experience of the curriculum are viewed as tangible products, and conform to the teacher’s original intentions for it. (p279)

A practical curriculum interest aims at reaching an understanding that enables appropriate action to be taken The student and teacher interact to make meaning of the subject matter, thus equipping students to act on these meanings Teachers with a practical cognitive interest are concerned that interactions in the learning environment provide appropriate opportunities for learning. The curriculum places emphasis on actions or practices which arise as a consequence of reflection. (p280)

An emancipatory curriculum interest strives for empowerment, rational autonomy and freedom The curriculum that they envisage is a process, which strives for social and intellectual empowerment, and is truly negotiated. The power resides with the students as learning takes place within a community of scholars, with the ultimate aim of empowering them to be effective as individuals and members of society. Their vision is potentially boundary-less, with change the outcome and process of curriculum. (pp281–282)

In considering curriculum’s foray into doctoral education from these three perspectives, it would seem at first glance that many supervisory practices are inherently grounded in both practical and emancipatory interests. Indeed, they would seem more explicitly so than in coursework. However, while many PhD supervisors and students may indeed resonate with an emancipatory interest, the reality for many is perhaps a doctoral experience increasingly dominated by a curriculum foregrounding technical interests of doctoral milestones, candidate management, and completion rates. This echoes McWilliam and Singh’s (2002) speculation, that one of the reasons why ‘curriculum’ has seemed such an ill fit for doctoral

education is that, in taught coursework contexts, ‘curriculum’s imperative is to contain knowledge’... while the ‘imperative of research is to discover new knowledge’ (p3).

Although there have been many reports and reviews signalling the need for an overhaul of the PhD (ACOLA, 2016), Australian universities have not yet responded in any radical way that has challenged the centrality of the production of a written thesis. Without the use of an organising curriculum framework they have added to the diversity of doctoral program types and bolted on additional expectations around the research project itself designed to appeal to a range of agendas. Rather than intentionally re-designing the doctoral learning experience itself by taking advantage of the learning spaces students encounter, the responses from universities themselves signal wariness in tinkering too much with the PhD-as-thesis model.

So, if we are to remake the PhD to better support the development of future university teachers as well as researchers in industry, we still require a way of unpacking the opportunities for learning that currently constitute the PhD.

With that aim, we have proposed two ways of a framing of doctoral education. The first is as four learning spaces that make up (to varying extents) the traditional research-focused PhD (chapter 4):

1. Research project/thesis
2. Supervision
3. Department context/disciplinary communities
4. Skills/attributes workshops courses

The second way is the use of the idea of stewardship (chapter 5). In linking our project to the concept of stewardship outlined by Golde & Walker (2006), we use it not only to re-think teaching development within the PhD, but also to work to ask questions of the shape and purpose of the PhD itself – as a curriculum designed to develop stewards of the discipline.

4. Learning spaces in the PhD

In most Australian PhD programs, apart from the supervisor, a set of institutional milestones, the conduct of research, and the production of a thesis to be assessed for contribution to knowledge, it is unclear what the student will encounter as part of their learning. The focus is squarely on research/new knowledge production even though a good deal of the curriculum is likely to be concealed from the student. While many universities now have a suite of generic qualities that PhD students are expected to demonstrate on graduation (through the thesis or in addition to it), it is not clear how the learning experiences in the PhD develop those qualities. Consistent with the view that the PhD is about the production of new knowledge, the thesis continues as the main form of assessment – despite the precarious nature of future academic work.

In the project, we argue that there may be at least four authentic learning spaces (Figure 1) that can be conceived as doctoral curricula in the broadest sense: (1) the research project/thesis, (2) the supervision of that project, (3) the department context/disciplinary communities in which this is situated, and (4) the co-curriculum that has been added through skills/attributes workshops and courses.

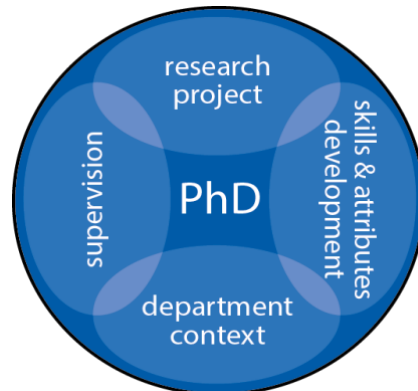


Figure 1: A model of the four learning spaces of the PhD.

Research project/thesis

The research project and production of the thesis is the undeniable ‘heart’ of the PhD. The core research-based activity that supports learning in this space is the formulation and design of research questions and of the processes used to address those questions. It involves developing a deep understanding of the topic and field, the current literature, the relevance to the discipline, and it involves conducting the research and documenting the project and the learning from that project in some form of thesis. Of the four learning

spaces this is perhaps the most familiar to those within and outside of doctoral education. Indeed, it is so familiar that it is sometimes perceived to be the entire experience.

Supervision

The core research-based activity in supervision involves supporting the PhD student to develop as a researcher, using the research project as a vehicle for that learning and development. In some disciplines, the supervisor may have a ready project for the student, while in another context the student negotiates the topic of their PhD research. This involves the supervisor in an assortment of activities: providing guidance to support the student in developing the overall direction of the research project; helping students understand the topic of the research (and its scope) and how it is situated in the field alongside its warrant; supporting students coming to grips with the design of the study including knowledge of methodology and methods (and their implications for interpretive claims about findings); attending to students' written communication; empowering students to navigate the institutional landscape with confidence; guiding their entrance into networks of global research communities; and caring for the desires students express related to personal ambitions, professional aspirations, and career development. Lee (2012) summarised these activities in a supervisory model that included five elements: functional (project management), enculturation (draw student into disciplinary community), critical thinking (question and analysis of work focus), emancipation (question and analysis of self) and relationship development (enthusiasm, nurturing). The process of supervision is intricate, involving expertise in mentoring, diagnosing misunderstandings of concepts, facilitating learning of new concepts, and supporting the development of advanced analytic and academic communication skills, all set against the institutional landscape and disciplinary conventions.

Departmental context/disciplinary communities

The core research-based activities in the local department and in disciplinary communities are in supporting the PhD students to build networks and connections with other researchers in order to progress their current and future research. The local department is also the place where students learn and are engaged in the micro-practices of enacting the discipline with others. This engagement with the local department and the international disciplinary community is important because it enables doctoral students to explore and test their understandings of the concepts and ideas they are using in their research, to communicate and share their findings for use by other researchers, and to build collaborations for future research projects and funding.

Skills development (via workshops, online modules, etc.)

The core research development activities in the skills area are workshops and seminars that provide the PhD students with the tools they need to be an effective researcher. These training activities support students in developing their understandings and skills in relevant research processes (e.g., preparing ethics applications, referencing, searching databases, intellectual property, writing for publication, developing a social media profile, preparing a CV). This aspect of the doctoral learning experience is the aspect most commonly used for developing teaching through student participation in teaching skills workshops. In addition to including teaching development workshops and modules, participation in research workshops might be extended to develop students' skills and understandings as future teachers as well as researchers.

While these are traditionally spaces in the PhD for research and researcher development, in our analysis our attention is drawn to other aspects of academic work (in particular, teaching, teaching development, stewardship and the PhD goals as articulated in candidature milestones) that can be integrated in these same spaces for PhD students.

In briefing paper 3 (Appendix F) the four learning spaces are used to show how teaching development might be embedded into the PhD (see also chapter 6). In briefing paper 4 (Appendix G) we use the learning spaces to probe how they might be productively put towards stewardship – that is, to preparing students as stewards of the discipline (Golde, 2006) (see also chapter 5). In briefing paper 5 (Appendix H) the learning spaces are combined with the stewardship ideas to describe a reconceptualisation of PhD candidature milestones (see also chapter 7).

5. Stewardship

Stewardship is an idea that can be used to diagnose and reframe a curriculum for doctoral education. In linking our project to the concept of stewardship outlined by Golde & Walker (2006), we not only use it to re-think teaching development within the PhD, we put it to work to ask questions of the shape and purpose of the PhD itself – as a curriculum designed to develop stewards of the discipline. For Golde (2006), the goal is clear:

[a] PhD holder should be capable of *generating* new knowledge and defending knowledge claims against challenges and criticism, *conserving* the most important ideas and findings that are a legacy of past and current work, and *transforming* knowledge that has been generated and conserved by explaining and connecting it to ideas from other fields. All of this implies the ability to teach well to a variety of audiences, including those outside formal classrooms. (p10)

While these three facets of stewardship preserve disciplinary learning at the heart of the PhD, it is evident that the education of Golde's (2006) 'steward' promises a set of doctoral learning experiences that shift in intention, structure, pedagogy, education and moral outcome. We take these dimensions as mirroring the complexity of curriculum. Yet, the goal is not simply to protect the discipline or maintain the status quo; the mission is to take forward the discipline in thoughtful and considered ways that include the desire for challenge and change.

A steward thinks about how to preserve the heart and essence of the field. But there are also important forward-looking meanings, as stewardship does not imply stasis. A steward is a caretaker who trains a critical eye toward the future. A steward must be willing to take risks and move the discipline forward. (Golde, 2006: 13)

In taking on the label of a disciplinary steward, a PhD student recognises and takes responsibility for moral and ethical care of the discipline. On this view, a PhD student understands their responsibility to engage in problem solving and/or greater understanding. Self-identifying as a steward implies adopting a sense of purpose that is larger than oneself.

In this project, we see these three facets of stewardship (shown in Figure 2) – including moral and ethical care for the discipline as the tie between them – and as operating across both academic and non-academic settings. Stewardship provides an overarching intention to the design of doctoral education.

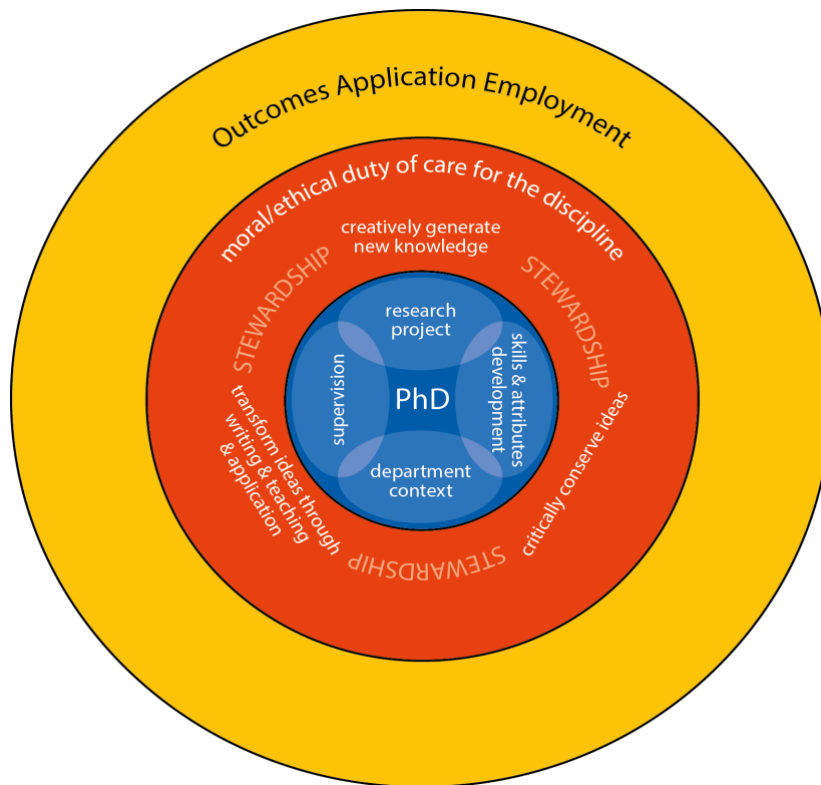


Figure 2: A model of a PhD ‘curriculum’ incorporating stewardship and the four learning spaces of the PhD.

Finally, an education for stewardship is taken to be the primary narrative of the PhD. While the four contexts are likely to remain as learning spaces in which activity takes place, they are no longer assumed to be the only spaces capable of developing stewards of, and for, the discipline. Further, the outcome or destination of the PhD is no longer solely focused on the academy but expands to include the multiplicity of destinations. Assumed in this model is that students will be much more active in shaping the nature of their candidature, identifying and engaging with opportunities that develop them as scholars and stewards of their discipline. This model is explained more fully in briefing paper 2 (Appendix E).

We make the practical argument that a doctoral curriculum underpinned by stewardship does not on its own add ‘more’ to the PhD; instead, it provides the coherence that is essential to dealing with the multiplicity of purposes that the Australian PhD is now expected to meet. Indeed, for us, stewardship offers a way of thinking about how the practices and activities of doctoral education can enable graduates and universities to address the future needs of academia, industry, community organisations and government simultaneously. A focus on stewardship is intended to provide students with the confidence and flexibility to move between these destinations with both ‘disciplined’ minds, and a care for the future of the ‘discipline’. In this project the institutional partners (Sydney University, La Trobe University, Deakin University, University of Western Australia and University of

Auckland) have collected data to offer examples of how these learning spaces can develop stewards capable of working in, navigating between, and flourishing in a range of employment settings, and described using the four learning spaces introduced above. More examples are given in briefing paper 4 (briefing paper pp7–10).

Research project/thesis

The following example focuses on how the demonstrated outcomes of the stewardship PhD might be broadened beyond the traditional (and, in Australia, the most common) written thesis, to include outcomes capturing the stewardship ideas of knowledge generation, transformation and conservation.

Example 1: The written thesis is no longer the sole artefact of the PhD or the thesis is redefined to become a collection of different kinds of materials (not excluding the traditional thesis). To communicate the process and project of the research to different audiences (and to document research influence and engagement), the student may choose to curate an online portfolio that might include a selection of the following:

- a short video of the research for 3MT competition
- a blog describing the process of undertaking the research - key challenges, decision-points, moments of change
- a Twitter feed documenting the nature and extent of public engagement
- some form of project visualisation with relevant images, diagrams, graphs, photographs, maps, etc.
- a podcast containing relevant recordings of conversations with students (undergraduate and postgraduate), influential scholars, and key leaders from relevant industries focused on the research
- links to the student's written thesis, scholarly publications and other writings for professional audiences
- links to presentations, public talks or teaching (and reflections on the feedback from those audiences) that the student is engaged in
- a statement about what the student sees as their key achievement, and their future plans post-PhD.

Supervision

The following example illustrates one way that supervisors could shift current thinking and practice to incorporate more personal, moral and ethical development, more conservation of the discipline, and transformation of research knowledge in relation to policy while maintaining a focus on the core research ideas of the PhD.

Example 2: The student and supervisor are active in co-designing and negotiating the student's learning experience through the PhD. The conversation takes into account the student's personal, professional and future career aspirations, the supervisor's institutional responsibilities, the department's requirements and available resources, and the kinds of activities intended to develop the domains of stewardship. This plan might include the following kinds of activities:

- identifying a strategy for communicating the research with key international scholars and external audiences
- participation in specific professional meetings and/or disciplinary conferences
- an experience of working in an industry setting or an exchange program at another university
- an opportunity to engage in undergraduate teaching
- occasions to learn about communicating research with/to the media (TV, radio, etc.)

Department context/disciplinary communities

The significance of academic socialisation that takes place in departments and disciplinary teams is well researched (Austin, 2002; Hakala, 2009; Hum, 2015; Meschitti & Carassa, 2014). One US study by Golde (2005) explored PhD students' experiences in four departments: geology, biology, history and English. Part of her data collection included interviews with students who had left the doctoral program, finding instances of mismatch (between the student and the department, between expectations and reality of doctoral study, and between the student and supervisor) and isolation from the department in terms of differences in ways of being a researcher. For students, learning how to understand, navigate, exercise agency and succeed in the micro-politics of the department is essential to how (and whether) stewardship grows. The following example is a way of encouraging that growth.

Example 3: The department invites students to put on a series of seminars/events to discuss how their research builds on the past and takes the discipline into new knowledge domains. The goal is for the department to interrogate how its PhD students develop a vision of the field that renews the department's own research agenda and priorities.

Skills development (via workshops, online modules, etc.)

Much of the provision for skills development is run by different professional service units across the university, for example libraries, learning and teaching centres, graduate schools, student learning support, research offices, careers centres, and marketing, communications and engagement. Where they are lacking in resources, universities might also invite or purchase special expertise when needed (thesis boot camp, writing for *The Conversation*, etc.). The following is one of many examples using an external resource to develop stewardship.

Example 4: Encouraging students to learn about crowd funding their research (perhaps with other students in cognate areas, in different institutions) not only develops their capacity for savvy entrepreneurship, innovation and collaboration, it also provides them with direct feedback on how their research ideas resonate with a different public.

6. Embedding teaching development

The existing teacher-development strategies for PhD students described in the literature can be arranged into three categories:

Category 1: Teacher-development through coursework: formal award programs on university teaching, short courses, workshops, seminars, online tutoring skills modules, or blogs on teaching for PhD students. Delivery is in different modes (online/face-to-face/blended) and can be part of the formal PhD curriculum or as an add-on

Category 2: Teacher-development through practice: teaching internships/fellowships, practical teaching experience in which the PhD candidate conducts some teaching (in employment or otherwise)

Category 3: Teacher-development through informal learning: informal learning about teaching through supervisory meetings, mentoring, peer discussions (e.g., laboratory demonstrators comparing notes in the tea room) and observation.

Few of these approaches provide a holistic focus for teaching development in the PhD that is experienced by all students or as meaningful by many students, and Nyquist (2002) notes that ‘the challenge remains to make ... innovative ventures integral, not merely add-ons, to traditional practices.’ (p19)

That challenge has been taken up in this project. Using the four learning spaces already described (chapter 4), briefing paper 3 (Appendix F) articulates the parameters of each learning space and then provides examples of how the opportunities for researcher development might also support teacher development through a more integrated curriculum. A brief summary of how these research learning spaces might also become teaching development spaces is provided below, and in more detail in briefing paper 3 (Appendix F, briefing paper pp4–8).

The learning space of the research project and production of the thesis is the undeniable ‘heart’ of the PhD. The core research-based activity that supports learning in this space is the formulation and design of research questions and of the processes used to address those questions. It involves developing a deep understanding of the topic and field, the current literature, the relevance to the discipline, and it involves conducting the research and documenting the project and the learning from that project in some form of thesis. This learning could also be applied to teaching, such as in PhD students designing an undergraduate research ‘teaching’ project for undergraduate students drawing on an aspect of their own research project and implementing this by mentoring the undergraduate

student teams, in collaboration with other PhD students under the supervision of staff in the department.

The core research-based activity in supervision involves supporting the PhD student to develop as a researcher, using the research project as a vehicle for that learning and development. This involves the supervisor in an assortment of activities: providing guidance to support the student in developing the overall direction of the research project; helping students understand the topic of the research (and its scope) and how it is situated in the field alongside its warrant; supporting students coming to grips with the design of the study including knowledge of methodology and methods (and their implications for interpretive claims about findings); attending to students' written communication; empowering students to navigate the institutional landscape with confidence; guiding their entrance into networks of global research communities; and caring for the desires students express related to personal ambitions, professional aspirations and career development. As supervision is a form of teaching, inviting students to step into the role of 'peer supervisor' for other students in the department while providing mentoring support can be associated with teaching development. This can be achieved by asking students to provide feedback on written drafts and presentations by their peers and through student contributions to group supervision meetings discussions where several students and supervisors come together to review work on their doctoral research projects.

In the local department and in disciplinary communities, the core research-based activities are in supporting the PhD students to build networks and connections with other researchers in order to progress their current and future research. The local department is also the place where students learn and are engaged in the micro-practices of enacting the discipline with others, testing their understandings of the concepts and ideas they are using in their research, and communicating their findings for use by other researchers. Teaching development sits comfortably with this range of activities, for example in a conference presentation where the focus is on the development of skills in planning and delivering a conference presentation, identifying and explaining the important concepts, engaging with the audience to monitor their understanding during the presentation, and responding to questions from conference delegates, as well as the communication of the research to the discipline community.

The fourth learning space (the development of skills needed to be an effective researcher) is potentially a rich source of overlapping teaching and research skill development. For example, as with research, locating and deploying open source resources is a key component of teaching in today's digital learning environments and increasingly curriculum artefacts are shared through digital repositories; identifying, tagging and acknowledging the use of such resources is an important skill for future teachers to develop.

In the contexts explored during this project, opportunities have been given (although not always taken up) for the PhD student to do some teaching (usually tutoring and/or laboratory demonstrating). In many cases there are also opportunities for students to learn about the principles of university teaching through teaching workshops and courses. The examples provided here are not intended to replace any of those opportunities. They are designed instead to show how the learning opportunities, practices and contexts drawn upon to support students' development as researchers can also support their development as teachers. They are examples of how teaching development might be integrated with, and become core components of, the research 'curriculum'. It is our conclusion that there are perhaps underutilised opportunities to develop teaching practice within existing familiar researcher development practices.

7. Stewardship and milestones in the PhD

In briefing paper 5 (Appendix H), we considered two overarching challenges. First, why do existing milestones appear to be experienced by staff and students as unhelpful bureaucracy that is largely unrelated to the sort of meaningful learning that the PhD should focus on? Second, if we take as our starting point that the PhD should prepare students for the multiple futures of knowledge work, what might useful milestones be in that learning journey?

A focus on milestones offers a different way into a curriculum conversation that aims to take seriously how institutions work with the doctorate. We suggest that PhD milestones can in many cases, also be seen as *de facto* 'curriculum' because (1) they focus universities' resources and efforts on what is important for the student to engage with to be successful or to progress to the next stage of their candidature; (2) they 'can' signal to students what is important for the development of the research and researcher, or in our case, the development of a disciplinary steward; and (3) like assessment, they provide a means of monitoring and assuring students' progress.

Milestones were introduced to help track a student's progress and to manage timely PhD completion. Also referred to as requirements, challenges (Ali, Kohun & Levy, 2007), goals and outcomes (Boud & Lee, 2009), they are usually formal requirements that are set by the institution but have also been extended to include a range of activities and events that PhD students engage in; achievements that merit some kind of certification or award; skill development and knowledge demonstration that is evidenced by a conference presentation or seminar presentation.



In taking the construction of milestones on the path to stewardship seriously, we see it as essential that the work not be merely conceptual, but concrete and relevant to the particular expression of stewardship on the horizon for the candidate. In this consideration of milestones we have proposed that for milestones to be useful they should be:

- based on meaningful learning directed towards meaningful outcomes
- authentic, grounded in actual research activities and tasks where possible
- practical and manageable – offering artefacts that are amenable to judgment of progress by student and supervisor.

Table 1 provides a framework for enacting a different PhD intention in milestones. This framework indicates that the first step of such a reframing is driven by a clear intention to drive and shape how milestones are put to work. The framework proposes that milestones in the first stage of candidature might focus on supporting students in preparing and planning for their doctoral learning journey. In the middle stages of candidature the focus

might be on supporting the students' engagement with the intellectual community. The final stage might also be supported with a broader array of milestones that focus on supporting students in articulating and building on the outcomes of their candidature.

Table 1: A framework for enacting PhD intentions via milestones

| Diverse realities of work | Facet of stewardship | Stage 1 PLAN | Stage 2 INTELLECTUAL COMMUNITY | Stage 3 OUTCOMES |
|--|----------------------|---|--------------------------------------|-----------------------------------|
| <i>Intentions that might reframe the PhD</i> | | <i>Artefacts/documents that serve as milestones</i> | | |
| Academia | Generation | Individual learning plan | Research communications strategy | Internship report |
| Industry | Conservation | Confirmation of candidature (research proposal, 'application' possibilities, etc.) | Research impact strategy | Thesis artefact |
| Community | Transformation | Project management plan and budget | Discipline engagement strategy | Research contribution seminar |
| | |  <i>Individual negotiated learning plan directs learning over the candidature</i> | Engagement and intellectual climate | Becomes a career development plan |
| | |  <i>The artefacts are housed in a portfolio/ website</i> | | |

- The individual learning plan directs the learning across the candidature in relation to the intentions.
- The intentional integration of learning through a range of activities, in the 'artefact', becomes a 'milestone'.
- The milestone 'artefact' might be a brief one-page outline of a strategy – or a departmental seminar presenting outcomes.
- The milestones would be individual in that students negotiate what they focus on for each and when.
- The timing of some milestones might need to be adjusted to reflect the timing of research process and candidate prior experience.
- The milestones are collaboratively developed (student, supervisor, careers experts, the department).
- A portfolio might hold the 'artefacts' for the student as external evidence of useful learning.

8. A way forward

One of the aims of this project was to provide resources for a different, academic-led, sector-wide conversation about renewing the PhD as a pathway to academic practice through the academic boards of Australian universities. The five briefing papers appended to this report provide both background and detail on a proposed new direction for future development of the Australian PhD. A summary of resources to inform three topics that might be presented for discussion by academic research committees is included below.

Does the current PhD meet the needs of students intending to embark on an academic career? Using the curriculum idea of the four PhD learning spaces (research project/thesis, supervision, the intellectual climate, and courses, workshops and programs), briefing paper 3 (Appendix F) describes how the research elements of the PhD can contribute to ways of thinking and practising related to teaching and teacher development. Illustrative examples are provided, such as the PhD students designing an undergraduate research ‘teaching’ project for undergraduate students drawing on an aspect of their own research project and implementing this by mentoring the undergraduate student teams, in collaboration with fellow PhD students under the supervision of staff in the department. The examples provided illustrate the extent of the under-utilised opportunities to develop teaching practice within existing familiar researcher development practices.

What is stewardship and how might this idea be used to frame a PhD with a broader set of outcomes more suited to the realities of today’s research workforce? Golde’s (2006) three facets of stewardship – generation, conservation and transformation – are presented in briefing paper 2 (Appendix E) and applied in briefing paper 4 (Appendix G). Together these papers provide both a justification for re-configuring the PhD curriculum towards a stewardship outcome, and examples of how that might be achieved. In the case of supervision, the student and supervisor might be active in co-designing and negotiating the student’s learning experience through the PhD. The conversation takes into account the student’s personal, professional and future career aspirations, the supervisor’s institutional responsibilities, the department’s requirements and available resources, and the kinds of activities intended to develop the domains of stewardship. This example illustrates one way that supervisors could shift current thinking and practice to incorporate more personal, moral and ethical development, more conservation of the discipline, and transformation of research knowledge in relation to policy while maintaining a focus on the core research ideas of the PhD.

How might PhD candidature milestones be refigured towards meaningful learning directed towards meaningful outcomes, authentically grounded in actual research activities, and be practical and manageable?

For students and many supervisors, milestones are seen as bureaucratic exercises that are largely unrelated to the sort of meaningful learning that should be embodied in the PhD. Briefing paper 5 (Appendix H) includes a framework for enacting a different PhD intention in milestones, and the following table, also included in briefing paper 5, shows how stewardship can frame activities that might be milestones.

Table 2: How stewardship can frame activities that might be milestones

| Facet of stewardship | Conversation starters to enact stewardship | Possible activities to bring stewardship to life |
|----------------------|--|---|
| Generation | Articulate how your PhD journey will provide you with opportunities to act as a disciplinary steward no matter the context of application. | <ul style="list-style-type: none"> • Host a podcast or start a blog. • Develop a YouTube channel. • Give a presentation as part of 3MT. • Organise a masterclass in your disciplinary area. • Curate a Twitter stream for an industry or disciplinary conference. • Seek outreach opportunities in communities or secondary schools. • Start a journal club. • Develop a reading group on major ethical events/controversies in your field. • Propose a series of discussions in your department on what publication in your discipline looks like. • Engage in activities to help you develop as a university teacher (peer observation/review of teaching). • Present at a conference. • Collaborate with other students to put together a list of 10 readings that every new doctoral student in your field should know about. • Write scholarly outputs. • Contribute to a policy paper. • Use Pinterest to develop a map of the field via its concepts, disasters, conflicts, personalities of scholars, or blindspots. • Write for your professional association or an online outlet (e.g., <i>The Conversation</i>). |
| | Explain how your PhD addresses a question or puzzle that multiple audiences can engage with, conceptually and practically. | |
| | Convince a diverse and external audience that you have the knowledge, skills and ethical disposition to carry out your study with care and integrity. | |
| Conservation | Illustrate in creative ways how your PhD is adequately anchored in, and builds on, the scholarship of your field and the multiple contexts of its application. | |
| | Offer a suite of evidence to show what, and how, you have contributed to the intellectual climate of your local and international scholarly research communities. Develop some way of illustrating how your study has benefited from those engagements, as well as the insights you have offered to other students. | |
| Transformation | Propose how your PhD opens up new questions (conceptual and applied) for the field. Show how your PhD interacts with other cognate fields in ways that generate a fresh contribution to knowledge. | |
| | Identify the points in your PhD journey, the variety of ways, and the different audiences you plan to communicate with so that your study engages with different ‘publics’. Justify | |

| Facet of stewardship | Conversation starters to enact stewardship | Possible activities to bring stewardship to life |
|----------------------|---|--|
| | how your approach is appropriate to multiple audiences; share your reflections on the impact of your engagement with those audiences; and how their engagement has enabled you to think differently about your study. | |
| | Prepare an artefact that highlights how your PhD journey has contributed to your development as a disciplinary steward/knowledge worker for the future. | |

While it is known that many students currently engage with these activities, they often need a way to make sense of them. A stewardship framework does this. If milestones shape both the intentions and outcomes of doctoral learning, they provide yet another entry point for reframing of the PhD. In a context where PhD graduates cannot rely on the academy as their main source of stable employment and where knowledge is being produced outside the academy in ways that are also changing universities, there is a very real case for questioning how the PhD's current design and structure prepare students for the reality of their future employment. The task of re-imagining candidature milestones is one response to the complexity of such a challenge.

While the outcomes of this project represent a paradigm change for PhD education, they also offer a blueprint for new ideas about embedding employability preparation more generally.

Appendices

Appendix A

Certification by Deputy Vice-Chancellor (or equivalent)

I certify that all parts of the final report for this OLT grant provide an accurate representation of the implementation, impact and findings of the project, and that the report is of publishable quality.

Name: Philippa Paterson Date: 20/2/2018

Appendix B

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Appendix C

Final Evaluation Report Reframing the PhD for Australia's future universities

Lead institution: The University of Sydney

Partner institutions: Deakin University, La Trobe University, The University of Western Australia, The University of Auckland (NZ)

Project Leader: Professor Simon Barrie

Funding: \$349 000

Evaluator: Dr Margaret Kiley, The Australian National University

Timeline: Final Report December 2017

Background, rationale and aim of the project

As the project website outlines (<http://reframingphd.com.au/>) the project aimed to develop strategies “that re-frame and integrate (i) the PhD research project, (ii) its supervision, (iii) the disciplinary community the PhD occurs in, and (iv) universities’ doctoral research skills and teaching development strategies, to better prepare graduates for employment in both academia and industry”.

In particular the project aimed to address the role of the PhD in preparing the future academic workforce, especially in relation to higher education teaching. This is a very timely focus given that the ACOLA Review (McGagh et al, 2016) has caused Australian universities to address the issue of the employment of doctoral graduates in ways that they have not done before. While the ACOLA review paid particular attention to doctoral graduate employment outside academia there is no doubt that there will still be a percentage of graduates employed in the higher education sector, reflecting the value of this project.

Of particular importance in the project was the concept of Stewards of the Discipline (Golde & Walker, 2006). As the interim evaluation reports outlined, initially there was considerable difficulty explaining and getting support for the concept. However, by the time the project was coming to a close this has changed considerably and there was definite support at the state-based workshop that I attended in Melbourne in October, and reports suggest each workshop was similar. This issue will be addressed in more detail below.

Certainly, the results of the project, particularly the five Position Papers, will make a substantial contribution to our understanding of, and approaches to, research education in Australia and internationally.

The evaluation has been, on the whole, formative through the provision of comments to team members during the project.

Sources of information that have contributed to the evaluation include:

- Access to project documentation

- Discussion with project team members
- Involvement in project activities.

Furthermore, as the evaluator it has been very helpful to be involved in various aspects of the project including:

- Team meeting Tuesday 23 February 2016 via Zoom
- Team meeting Thursday 21 April 2016 at the QPR Conference, following conference presentations
- Roundtable with invited guests, Sydney Friday 3 February 2017
- State-based workshop for staff and candidates, Melbourne 26 October 2017.

Deliverables and planned outcomes

At the early stages of the project, the leader, Professor Barrie moved from the University of Sydney to the University of Western Sydney. However, this change did not appear to have a negative impact on the project other than perhaps in reporting mechanisms given the project remained based at the University of Sydney. On the whole, the project kept to the broad timeline, although there were some modifications in reporting due to the changing role of OLT.

Briefing Papers

A key focus and output of the project has been the five Position Papers developed throughout, and noted below:

1. *Teacher-development strategies and PhD programs.* This report discussed the particular issue of the preparation of doctoral candidates for a possible academic career, and in particular, teaching. The paper recognized the growing agenda for working with candidates going into non-academic careers, but suggested that there would still be a number of graduates likely to move into the academy.
2. *Stewardship: A way of analyzing, integrating and providing intention to the curriculum of the Australian PhD.* Of particular interest in this paper was the recognition of curriculum in higher education and in particular research education with *stewardship* as a specific aspect of the curriculum.
3. *Embedding teacher-development strategies into the PhD learning spaces.* This paper effectively brought together the aspects of teacher development in Briefing Paper 1, and curriculum discussed in Briefing Paper 2. In particular four learning spaces were defined: “(1) The research project/thesis (2) The supervision of that project (3) The department context/disciplinary communities in which this is situated and (4) the co-curriculum” (Barrie, Peseta, & Trigwell, 2016 p.1). This paper took some of the more abstract ideas from the previous papers and translated them into the strategies proposed in the aims for the project.
4. *Opportunities for developing stewardship in the Australian PhD.* Paper 4 provided a useful summary of the previous three and then addressed the concept of stewardship in the Australian context. This was particularly important given that the original work was from the US where the doctoral program has a number of

variations from the Australian model. A specific issue raised in the paper was doctoral examination and whether there might be variations here in light of candidate pathways and possible outcomes.

5. *Reframing the Australian PhD for stewardship through candidature milestones: Shaping a curriculum conversation.* As the title suggests, the key concepts that had been developed in the earlier papers were brought together in this one paper through the use of milestones. The authors report the ways in which milestones are used in different Australian universities for example “checklists” or “roadmaps” with the suggestion that “these existing milestones remain anchored to traditional views of the PhD where knowledge work is developed for the academy as its primary audience, rather than the multiple destinations that graduates will need to seek future work in” (Peseta et al., 2017 p. 7). However, they note that one or two Australian universities have introduced the concept of an Individual Learning Plan which might provide more flexibility to meet the different learning needs and outcomes of candidates. A version of this paper has been submitted to the *Quality in Postgraduate Research* conference (April 2018) for presentation and discussion.

Certainly, in my view, these five papers have been critical to the success of the project and I suggest that they be widely distributed.

Project Activities

Following each of the sessions noted below an evaluative report was provided to the project team in order that any formative comments could be taken into account immediately. The comments on the 2016 activities are summarized from the Interim Report submitted in June 2016. Comments on 2017 activities are provided in more detail and are based on the reports provided to the team but not submitted to the OLT.

Team meeting Tuesday 23 February 2016 via Zoom

From this, and the other meetings, it was clear that the team operated well and built on various strengths of members. For example, identifying who would be involved in writing the various position papers presented at QPR and who would develop the planned case studies.

Meeting 2: Thursday 21 April at the 2016 QPR Conference

In addition to presenting a paper as part of the QPR conference, the project leader, Simon Barrie, presented the project to members of IDERN (International Doctoral Education Researcher Network).

The institutional case studies demonstrated considerable variation in the way that universities are addressing the issue of preparing stewards of the discipline even when that is not necessarily the terminology that they used. The discussion also addressed the concept of curriculum at the higher education, and specifically higher degree levels.

Roundtable: Friday 3 February 2017 University of Sydney (more detailed report)

The roundtable involved all team members as well as invited guests from a range of universities and roles including: Deans of Graduate Research (4); Researchers in the field (4); Directors (and equivalent) of Graduate Offices (2); and student representatives (3).

Following an introduction by Professor Barrie an online link was made to Professor Chris Golde (Stanford) for background information on the Carnegie Project, and in particular the concept of Stewards of the Discipline. The discussion that followed the presentation indicated that many participants had difficulty with the terminology of both “stewardship” and “disciplines”. However, after considerably more discussion participants commented that they appreciated the concept, but some still felt that the terminology was distracting. These points are taken up later.

Three further terms that were discussed, but which did not generate quite the same level of vibrancy, were “curriculum” at the doctoral level, “assessment” and “teaching”. The curriculum discussion seemed to be addressed by suggesting it could well provide a structure when discussing other aspects of doctoral education particularly the issue of the aims and purpose of the PhD. (See González-Ocampo, G., et al., 2015 for a further discussion of this.) While the topic of assessment was not addressed until later in the day, a similar response was agreed regarding assessment in that until the purpose of the PhD had been clarified discussion regarding the appropriate approaches to assessment were difficult. However, there seemed to be considerable support for the idea of the inclusion of a portfolio-approach with a focus on the skills of “curating” one’s portfolio being the key. The teaching discussion ranged over creative and more 21st century ideas of teaching including “learning by teaching” and ensuring that the idea of teaching was not confined simply to university teaching. But, as above, it was agreed that this thinking might change once the purpose of the doctorate has been confirmed and agreed.

Another area that provided considerable discussion was the notion of milestones in that there seemed to be some difficulty in ensuring that they were more than “just bolt-ons”. For example, Professor Helene Marsh suggested that, as a Dean, an issue for her to consider is how she might present the idea of milestones to her University community as a cohesive and comprehensive whole.

In discussions regarding the next few stages of the project, particularly preparing for Academic Board it was helpful to hear from Professor Joe Graffam who had already presented the concepts to Academic Board at Deakin. Joe suggested that one of the main reasons he was able to be successful is that he started with the concepts of stewardship, curriculum etc. and then moved to the terminology once the ideas had been accepted. Joe offered to prepare a draft of Paper 5: *A new discourse for a reframed model of a doctoral curriculum*. (This paper was then revised to be Position Paper 5.)

One particular difficulty which is likely to confront the team relates to the strong focus on trying to confirm the purpose and learning outcomes of the doctorate. It is suggested that the purpose might vary considerably depending on who one asks e.g. potential candidates, recent graduates, tax-payers, government, the academy etc.

Conclusion: From an evaluation perspective one of the highlights of the day’s meeting was the positive comments made by a number of participants on what they had learned and how valuable the day had been to them. Given their interest it was agreed by the project team that they would invite participants to engage with their state-based

workshops where possible. I suggest that one reason for participants engaging as positively as they did was that they were given to understand that their comments were seen to be helpful and respected.

Melbourne workshop 26 October

I was able to attend the state-based workshop in Melbourne (with others held in Sydney, Perth, and Adelaide). A particular focus for the workshops was that the presenters made it quite clear that this was a conversation and one that was being developed and not the final outcome of the project. Each workshop was divided into two parts; the morning for staff and the afternoon for candidates.

In the staff session, unlike the Sydney workshop earlier in the year, the concept of stewardship (Golde & Walker, 2006) was explained in a way that seemed to fit with the thinking of the participants. It was very interesting to see the different ways in which the idea of stewardship was accepted by the group compared with the session in Sydney earlier in the year. It was made clear to participants that stewardship in terms of the project is taken to mean competence in enacting the discipline and a sense of care and moral purpose for its application and transformation: creatively generating new knowledge; critically conserving; and responsibly transforming.

There was a really useful discussion on milestones with the focus on the “subliminal” message to candidates that milestones are about complying and how to write, with some very interesting discipline variations.

A topic that arose in discussion was: What about Indigenous approaches to knowledge—should/could this idea be included in some way? One way that this might be thought about is to support candidates with different ways of understanding and generating knowledge including disciplinary knowledge as well as cultural knowledge.

Another issue arising from discussion was that the Strathclyde University model of skill development and recognition might be some help in thinking about ways that issues could be presented <https://www.strath.ac.uk/rdp/>. (However, this was not to suggest that all candidates would be involved in the PG Certificate.)

Another discussion topic focused around the idea of whether it would be helpful when generating issues that those issues related to the development of the researcher be defined as “outcomes” and those related to the production of the research as “outputs”.

From the candidate session in the afternoon it became clear that the project might like to think more about the international student PhD experience which those present spent some time discussing. There was also considerable discussion regarding the supervisory quality (or lack of) and the need for development in this area. There were some quite passionate outbursts with the suggestion that it might be possible to develop milestones that are for both the candidate and the supervisor e.g. an Individual Learning Plan in which panel and candidate are involved. There were also some helpful suggestions about peer mentoring that would be worth pursuing.

There was useful discussion around the idea that “Something has to ‘give’” if new milestones etc. are to be included and if so, “What gives?” This was highlighted as a critical aspect of the project and so two questions posed to the project team are (a) what gets left out if more is put in? and (b) whether the word Milestone is the correct term for what is being described?

Conclusion

From an evaluation perspective I consider that the project developed very well and effectively addressed a number of key issues related to doctoral education and the preparation of stewards of the discipline. Team members were well supported and involved by the Project Manager.

Suggestions

As an evaluator, I consider that the main suggestion for development is that the value of the Position papers be enhanced by wide publication. Admittedly they are on the project website and various Academic Boards have been approached to consider them, however, I think their substantial value could be enhanced.

Clearly one generally accepted way is to revise each and then seek publication in the scholarly journals. Another option might be to forward the position papers to the Australian Council of Graduate Research (ACGR) for consideration at their April 2018 meeting. Additionally, sharing the papers with the leadership of the UKCGE (UK Council of Graduate Research) and the (US) Council of Graduate Schools would assist these groups as they tackle similar issues. In addition to the 2018 QPR conference where a paper has already been submitted another venue for the sharing of the research might be to a meeting of members of the International Doctoral Education Researcher Network (IDERN) to be held in Japan in September 2018.

Of a less ambitious nature, and prior to wider dissemination, it is suggested that the team might like to address issues related to indigenous knowledges and practice at the doctoral level as well as issues related to international doctoral candidates. A further issue for future development includes the consideration of the terminology used in the project, particularly the term “milestones” which caused considerable discussion, and some misunderstanding at the state-based workshops. A final issue that would benefit from being addressed is “what gives” in PhD programs if there are additional requirements such as a greater focus on transferrable/employability and teaching skills development. Questions raised suggest that perhaps the thesis itself might need to be shorter and of less complexity in recognition of the additional work required by candidates that is not specifically on their research project. Explaining the team’s position on this matter will be an important aspect of the final outcomes.

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Margaret Kiley
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Appendix D

Briefing Paper 1



Teacher-development strategies and PhD programs

In this first briefing paper for the Office for Learning and Teaching (OLT) project – Reframing the PhD – we describe the different ways in which teacher-development of PhD students is being conducted and then ask what is it that might be missing from those approaches that has led to a situation in which there is a considerable degree of dissatisfaction with the outcomes of current PhD programs. Rather than this being a comprehensive review of the many articles describing approaches to PhD student teacher-development, we have chosen a sample to illustrate the variation in approaches found in that literature. Briefing Paper 2: “a way of analysing, integrating and providing intention to the curriculum of the Australian PhD”, based on a paper by Golde (2006), provides one possible way forward, and one that is being tested in this project.

1. Introduction

The number of PhD graduates in Australia has recently increased dramatically. In 2004, 6238 students graduated with research higher degrees from Australian universities, and by 2013 the number was 8236 – a 31% increase (Guthrie, 2014). The Australian government, in 2013, reported that 46% of the graduating PhD student cohort was employed in Higher Education institutions (GCA, 2014). In 2004 a similar proportion (48% of domiciled PhD graduates) were employed in the UK system (Hopwood & Stocks, 2008, p.188). In short, higher education represents the largest single employment destination for PhD graduates in these two countries.

The striking growth in numbers of PhD graduates, as well as employer feedback about their career preparedness, has understandably prompted considerable discussion about employability (Universities Australia, 2013; DIISR, 2011). Until recently, that discussion has focused almost exclusively on employability outside of academia. However, changes in, and to, higher education are prompting a serious re-think about how well the PhD as the pathway to an academic career, is preparing the future academic workforce. In fact, Probert’s (2014) report is the latest in a long line of international disquiet about the PhD’s indifference to teaching preparation and development (Brew, Boud & Namgung, 2011; Jepsen, Varhegyi & Edwards, 2012; Blouin & Moss, 2015). A report by Metcalf, Thompson & Green (2002) commissioned by the Higher Education Funding

Councils of England, Scotland and Wales recognised that: “[a] concentration on research training has not equipped PhDs to perform other faculty roles, especially undergraduate teaching” (Metcalf, et al., 2002, p.16).

The story from the perspective of current Australian research students somewhat unsurprisingly, echoes the international concerns raised over the past decade. Most consider their PhD program to be effective in preparing them for careers in academic research, yet many do not perceive it to be particularly effective at preparing them for other aspects of their academic role such as teaching or service, or indeed for careers in other sectors (Edwards, Bexley & Richardson, 2011).

While this project is not only about reframing the PhD to better support the development of university teaching, it is our starting point for a consideration of the relevance of the doctoral curriculum in general. As such we begin the series of project Briefing Papers with a look at some of the recent research into how teacher-development is being done, how it might be done, and some of the issues that arise from current practice.

The teacher-development strategies for PhD students that have been described in the literature are presented here using three categories, as follows:

Category 1 Teacher-development through coursework: Formal award programs on university teaching, short courses, workshops, seminars, online tutoring skills modules, or blogs on teaching for PhD students. Delivery is in different modes (online / face-to-face / blended) and can be part of the formal PhD curriculum or as an add-on;

Category 2 Teacher-development through practice: Teaching internships/ fellowships, practical teaching experience in which the PhD candidate conducts some teaching (in employment or otherwise); and

Category 3 Teacher-development through informal learning: Informal learning about teaching through supervisory meetings, mentoring, peer discussions (for example, laboratory demonstrators comparing notes in the tea room) and observation.

Several of the articles reviewed describe combinations of the three categories. For example, Silverman (2003) suggests a three-pronged approach to developing beginning university teachers:

1. Courses – these might include the following content: (a) the college student, (b) preparation for teaching, (c) teaching methods, (d)

assessment and grading, (e) improving teaching, and (f) ethics. The paper includes more detailed examples of each category (p.75-76);

2. Teaching practica – these teaching experiences should be progressive with PhD students assisting at first and then taking over more of a class under supervision of the professor. They might also include group instruction, demonstration classes and the submission of a teaching portfolio; and
3. Mentoring - This would include supervising and sharing resources during teaching practica and engaging in discussions about teaching philosophy and why instructional decisions were made in various classes.

Silverman acknowledges these approaches may need to be adjusted for different students, cohorts and faculties, and interwoven with informal activities.

Initiatives implemented in the USA since the turn of the century, such as Preparing Future Faculty (PFF) (Gaff, 2002) and Re-envisioning the PhD (Nyquist, 2002) also emphasise the use of multiple strategies that cross all three categories, and some, such as at North Carolina State University (NCSU) achieve this aim through independent teaching, a mentorship program with NCSU academic staff, and a strongly recommended course in teaching (Jones, et al., 2004, p.266).

In reality all proposals for teacher-development in categories 1 and 2 would expect some of category 3 to occur informally. For this initial analysis however, we present, in each of the three categories, examples of the published work that exemplifies the strategies adopted in these categories.

2. Teacher-development through coursework

Kiley (2014) in her Office for Learning and Teaching (OLT) report on Coursework in Australian Doctoral Education, adopted a focus on coursework generally, but in an on-line survey (724 responses, 14% response rate) of doctoral students in five universities, she asked specifically about skills development, including teaching skills (p.51). Only 39% said that they had or were undertaking coursework, and when asked to describe the opportunities that they had to develop teaching skills, 64% replied minimal or moderate, with 36% saying they had extensive opportunities.

Despite the limited up-take in Kiley's study results, forms of formal coursework engagement with teacher-development activities are now commonly available to PhD students, though they vary considerably from year-long formal award courses on teaching and learning to series of seminars or short courses. While many are "bolt-on courses" with the limitations of such a curriculum approach

(Barrie, 2004) and some are compulsory (e.g. IT University of Copenhagen, n.d.) increasingly they are being seen as part of holistic doctoral student development, as shown in *Apprise*, the Oxford University Preparing for Academic Practice website (*Apprise*, n.d.). In addition to guidance on “Venturing into Teaching” the site includes information under tab headings of “Being an international PhD researcher”, “Getting through your PhD” and “Academic career paths”. The teaching development options include stages of development from (1) half-day preparation seminars to (2) being mentored by an academic in your discipline, and observing teaching, to (3) sessions of reading and discussions over 3.5 days that may lead to a Teaching Fellowship of the UK Higher Education Academy, and to (4) a one-year part-time course culminating in a Graduate Diploma in Learning and Teaching in Higher Education (Oxford University Support for Researchers, n.d.).

These more holistic approaches are also focused on socialisation processes and on considering the range of academic activities. Austin (2002) suggests a much more organised, explicit process of socialisation that includes discussion of career and academic goals, teaching strategies and institutional service. She notes that this could be implemented through a systematic program of feedback and assessment with academic staff, informal peer relationships and ongoing self-reflection. In a follow-up article with McDaniels (Austin & McDaniels, 2006) she uses Boyer’s ‘Four Domains of Scholarship’ (Boyer, *Scholarship Reconsidered*, 1990) as a conceptual model for professional development. The three-dimensional model involves:

1. Preparation Strategies (modelling, professional seminars, certificates, conversations and internships)
2. Responsible Stakeholders: (faculty, graduate programs, universities, professional associations, agencies and foundations)
3. Scholarly Domains (Application, discovery, integration, teaching)

The article provides some examples of how the three dimensions of the model could operate together and some examples of universities currently using some similar strategies.

The need for wider use of such approaches is highlighted by Brew, *et al.* (2011). From a survey of academic skills development in six Australian universities they concluded that there is a need to foster value for the development of a broad range of skills that are not currently specifically addressed – especially teaching undergraduates.

A theme of tailoring the use of coursework to develop individual teaching needs is emerging in the literature (e.g. Silverman, 2003; Cumming, 2010) and in the case of the latter research, Cumming discusses the contextual diversity of doctoral programs and the difficulties of providing a model that integrates all

needs. So his suggestions are for a more flexible approach where there are 'joint responsibilities' (p.36) for both student and faculty. A more dynamic approach to doctoral practices and arrangements, rather than a one-size-fits-all approach is considered to be more useful. A range of these practices is provided (p.33) involving a one-on-one negotiation for individual students, or an arrangement based on the needs for the course.

3. Teacher-development through practise

More than a third of PhD students engage in some form of teaching during their PhD candidature. In surveys conducted with doctoral students at Oxford University (Trigwell & Dunbar-Goddet, 2005) and at Sydney University (2014), 45 and 38% respectively say that they have taught undergraduate students. While this is seen as a positive in terms of broadening their perspectives about their field, it is also, in many cases, unqualified and unsupported teaching. Harland & Plangger (2004) suggest that more is needed in integrating 'teacher education' and 'research training.' They provide an example from their earlier work (Harland, 2001) using an interdisciplinary community of teacher training from the UK. Boud and Tennant (2006) take this argument further in a focus on 'generic professional doctorates' that offer non-traditional, interdisciplinary PhD programs. They identify some of the challenges of providing a less conventional, discipline-based curriculum and conclude that this requires more collaboration between workplaces and faculties and an overall change of academic culture to operate effectively within the new framework. It is this type of change that may also be needed in the reframing of the more conventional PhD in the provision of teacher-development for future academics.

An internship with paid incentive that incorporates both formal and informal development of teaching is described by Partridge, *et al.* (2013) in a case study of a Postgraduate Teaching Internship Scheme at an Australian research-intensive university. The program includes:

- Application and recommendation through the faculty/supervisor;
- An internship supervisor who provides formal and informal feedback and assists in the organisation and completion of the internship program;
- Financial incentives (for both teaching and professional development);
- Participation in 50 hours of professional development (comprising an intensive three-day workshop at the start of the year plus 30 hours of seminars over two semesters);
- Undertaking 104 hours of teaching;
- Developing a 'Teaching and Learning' portfolio that outlines teaching strategies, resources and activities; and
- Curriculum design

Kiley (in Hopwood, *et al.*, 2010) emphasises the need for the inclusion of socialising and modelling elements in internship-based contexts, and Jepson, et al. (2012) provide an outline of how the teaching side of such a practice-based internship might be supported through:

- Information dissemination to supervisors about teaching training (certificates, diplomas, etc.)
- Increased responsibility of academic supervisors (for teacher development)
- Performance indicators for beginning teachers
- Formal and informal discussions (which would be the responsibility of the supervisor)
- New teacher to develop reflective portfolios in conjunction with supervisor and faculty expectations.

Suggestions for the auditing and evaluation of the approaches described in this category are provided by McWilliam & Singh (2002) and Hopwood & Stokes (2008) respectively. Hopwood and Stokes report that 'students perceive benefits founded upon the establishment of new rules (formal recognition), mediating tools (mentors), community (reading groups), and division of labour (teaching experiences)' (p.194). The offering of resources (predominantly the mentor) helped the students develop their teaching-related 'objects' (resources, skills etc.).

4. Teacher-development through informal learning

As mentioned above, much of the teaching practice that students engage with is unsupported, and students are left to their own resources, their peer networks and the use of their experience as students. In 2010, Hopwood reported on a study that looked largely at the informal outcomes of doctoral students from a sociocultural perspective. He found that much of the learning that takes place through doctoral activities (such as teaching, editing and publishing) happens outside of formal structures. In his conclusions he cautions against oversimplified provisional outcomes of the curriculum in favour of more indirect, *in situ* learning that is likely to occur outside of the formal support or rewards structures (Hopwood, 2010).

5. Existing shortcomings

If we look at this analysis through the lens of the issues raised in the introduction to this paper, several shortcomings are apparent.

In all documented cases of actual practice, there is no description of a change in the research agenda of the PhD. The teacher-development is being sought through an *addition* to an existing research curriculum. There is some consideration of how the core research learning experience could deliver different broader outcomes, but no examples of it happening. This is still the case despite calls for the need for change, for example by Austin (2002) “some of these ideas and programs call for considerable, even radical, rethinking of the way in which doctoral education historically has been approached.” (p.138) and by Gaff (2002) who considers that change needs to come through wide consultation.

“These studies document serious problems with traditional practices in doctoral education and the need for improvements in the way faculty members are prepared. At the very least these studies beg for conversations among graduate deans, department chairs, directors of graduate studies, graduate faculty and graduate students – and administrators and faculty members at primary undergraduate institutions that hire most new faculty.” (Gaff, 2002, p.66)

Part of the reason is that there is a reluctance to change a PhD program that most commentators would describe as having been successful. This reluctance is seen starkly in the North Carolina State University PFF case evaluation (Jones, et al., 2004) where opportunities for students to teach were provided, but many academic staff continued to see this as time being taken from the research program. They raised concerns such as turning the PhD into an applied teaching degree, the replacement of research training with the extra teaching activities, and fears that the activity would restrict the university’s ability to raise its own standing in the national rankings. Sixty two percent of the academic staff declined to participate (Jones, et al., 2004, p.271).

A second shortcoming is found in the nature of the teacher-development proposed. Many current strategies suggest an impoverished view of teaching as simply practical ‘skills’. Teaching includes an awareness of the ways of the learner, the design of the learning experience, the development of the object of study, creating interaction between the learner and the object of study, and monitoring the learning experience. Macfarlane (2007) describes teaching as having three phases: pre-performance, performance, post-performance (p.56). In addition, the nature of teaching is changing. Less time is being spent on the face-to-face aspect of teaching and more on design of the learning experience (often with considerable technical support, for example in simulations and digital media-based discussion forums). More emphasis is being given to engagement with learning before teaching (as in the flipped classroom idea), more use is being made of learning analytics, assessment and feedback have become more a

part of the learning process, and learning is being supported in a greater variety of contexts outside classrooms and universities. In these cases, the performance phase is much reduced, and is absent in some instances.

If the focus of these programs is seen by the PhD students as being on skills development as taught performance skills – not learned dispositions or ways of thinking about teaching across all three phases, it may explain why the uptake of provided courses is low. Despite around 70% of PhD students saying that they would like to pursue an academic career, the uptake of teaching development course opportunities is substantially less.

Three sound proposals for improvements in teacher development are described in the literature reviewed for this paper –(i) individually tailored programs, (ii) greater recognition of the value of informal learning and (iii) more support for the PhD students who elect to develop teaching through a teaching practise approach. In terms of current PhD programs, feasibility is the problem with these three suggestions. With numbers of PhD students increasing, to what extent is personal tailoring feasible? If greater recognition of the value of informal learning is achieved, and more formal use is made of it, does this mean that it loses some of its informality? Is such an achievement feasible without this loss? As is the case for the individual tailoring approach, attempts to provide even more support for the PhD students who elect to develop teaching through a teaching practise approach is likely to create issues for the students who are not supported. The initiative at Emory College in the USA that provided an opportunity for PhD students to teach first year classes in their area of research was only able to support 10 of the 76 applicants (Sales, et al., 2007). Is it feasible to provide support all students?

To address these issues some authors have called for a more holistic focus for the PhD that is experienced by all students. For example, Nyquist (2002) notes that “the challenge remains to make ... innovative ventures integral, not merely add-ons, to traditional practices.” (p.19) There is a challenge in providing a less conventional, integrated curriculum that requires more collaboration between graduate schools and faculties and an overall change of academic culture to enable a new PhD curriculum framework to be debated. The concept of stewardship, as one way to take this debate forward, is discussed in Briefing Paper 2.

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Appendix E

Briefing Paper 2



Stewardship: a way of analysing, integrating and providing intention to the curriculum of the Australian PhD

1. Introduction

In Briefing Paper 1 *Teacher-development strategies and PhD programs* prepared for the project team by Keith Trigwell, three approaches to teaching development in the PhD were identified from an exploration of the scholarly literature: coursework, through practice, and informal learning, and examples of each approach were described. Common across these approaches is the tendency to see teaching development as an add-on to the PhD, especially the research project. In other words, there is no discernable (or intentional) relation between the teaching development efforts undertaken by students and the assessment and/or outcome of the PhD. The paper's conclusion flagged the notion of a 'doctoral curriculum' as a response to the problem of teaching development becoming more integrated.

In this second Briefing Paper for the project team, the goal is to flesh out an idea that can be used to diagnose and reframe a curriculum for doctoral education – and that idea is stewardship – borrowed from the work of Golde & Walker (2006). We put the term stewardship to work in three ways. The first is as a heuristic device that enables us to ask critical questions about the current purpose and shape of doctoral education in Australia. The second is to test whether stewardship offers a compelling way of conceptualising students' learning experiences into a coherent and integrated curriculum. And third, we flag how stewardship offers intentionality to the design challenges of doctoral education, in ways that are currently absent from curriculum conversations about the multiplicity of purposes which plague the contemporary Australian PhD.

In this Paper, we draw on the existing research literature to describe some of the concern with bringing 'curriculum' more explicitly into the doctoral education landscape. Second, we make a case for the notion of stewardship and outline its three dimensions drawing on the pioneering work of Golde & Walker (2006), and in doing so, point to examples from their Carnegie Foundation initiative. Third, we describe how stewardship has the potential to offer a more intentional and integrated view of learning in the PhD that allows for a diversity of outcomes. In essence, stewardship enables a set of new framing questions:

- What happens if we take seriously a complex notion of 'curriculum' into the learning contexts of the Australian PhD?
- What happens when we see the curriculum of the PhD as comprising (at least) four learning spaces: the research project/thesis, supervision, the intellectual climate

(departmental context), and generic courses and skills workshops? How might the design of the PhD include learning in, and between, these four spaces?

- What happens when those four (traditionally research conceived) learning spaces are re-imagined to include a focus on teaching development?
- What happens to the PhD if we see 'teaching development' more broadly - to be about the learning of others in a range contexts?
- What happens when we conceive the curriculum of the PhD to be about developing stewards (rather than researchers, primarily) of the discipline, no matter the PhD graduates' employment destination?

By taking the two notions of curriculum and stewardship seriously, the project offers an insight into how these five overlapping questions can take the Australian PhD beyond the impoverished discourses of research training that currently dominate the policy landscape, to one that returns us to the fundamental question of doctoral *education*.

2. A doctoral curriculum?

Beginning with the premise that a new national conversation about the Australian PhD is sorely needed – one that attends to the needs of a range of stakeholders: the academy, industry and the community – arguments have long been made that the entire learning experience requires a much more designed approach (Cumming, 2010). Fuelled by the fact that changes to the knowledge production scene outside the academy are putting pressures on the PhD to feed into economic agendas for the nation, Gilbert (2004:300) provides a helpful landscape summary for those arguments:

- consumers and end-users wanting research to address the problems and practices of everyday life (relevant, applicable and focused on improvement);
- multi-disciplinarity has become the research logic for innovation and discovery;
- the boundaries of knowledge implied within academic and institutional structures of universities no longer represents the sophistication in conceptions of knowledge;
- knowledge production, innovation and circulation is proceeding apace in spaces outside the university;
- the academic role and profession is no longer just teaching and research. Not only have these activities become unbundled, new opportunities for academics have emerged in the areas of entrepreneurship, community engagement, intellectual and advocacy work (raising questions about future doctoral employment destinations and outcomes);
- the forms of the doctorate have diversified; in some areas coursework is an expectation, while in others, it has become formalised through the structure of the professional doctorate;
- competing research paradigms and methodologies have created tensions in a range of fields; and
- concern about the outcomes of doctoral education have focused attention on the development of generic capabilities and transferable skills.

Although there have been many reports and reviews signalling the need for an overhaul of the PhD (ACOLA, 2016), Australian universities have not yet responded in any radical way that has challenged the centrality of the production of a written thesis. They have however, added to the diversity of doctoral program types, and they have bolted-on additional expectations around the research project itself designed to appeal to a range of agendas, for example, those related to industry collaboration, commercialisation, ethics and integrity training. Rather than intentionally re-designing the doctoral learning experience itself by taking advantage of the learning spaces students encounter, the responses from universities themselves signal wariness in tinkering too much with the PhD-as-thesis model.

Writing in an Australian context in 2002, McWilliam and Singh speculated that one of the reasons why 'curriculum' has seemed such an ill-fit for doctoral education is that in taught coursework contexts "curriculum's imperative is to contain knowledge"... while the "imperative of research is to discover new knowledge" (p.3) – that is, one specifies what is to be learned, while the other is engaged in the act of creating it. Their argument in the main is that changes to the nature of knowledge production in and outside of universities is bringing curriculum into the conversation in ways that are designed to satisfy demands for increased order, accountability, and quantification - a form of surveillance imposed by external bodies. In other words, the move toward curriculum in doctoral education and research training derives in part from a logic that resources are being wasted.

Writing elsewhere, Grant (2011:254) adds her take:

... the curriculum of doctoral education can be described as a blend of knowledge skills and dispositions that are typically learned through a relatively intense = face to face pedagogical engagement between a novice and mature scholar/researcher (or two), sometimes supplemented by a research comprising 'colleagues' with different levels of experience. If a student is lucky, there will be other doctoral students nearby to talk to, maybe form writing/and/or reading with; their department might provide seminars or journal clubs or even writing retreats. The student may learn as much from through participation in a wider network of national and international scholars in her/his research area accessed via conference attendances, online discussion lists, reviewing work, and/or supervisor introductions.

And there are other efforts too that resuscitate 'curriculum' as a possible solution to the ills that plague doctoral education. In a panel conversation with a well-known group of doctoral education researchers (Hopwood, Dahlgren, Boud, Lee and Kiley) held at the 2010 Quality in Postgraduate Research (QPR) conference on this very topic (Hopwood et al, 2010), curriculum for Hopwood can be read as "the whole pedagogical environment, the collection of things and practices that shape students' learning" (p.85). For Kiley, curriculum involves all the following components: candidates, supervision, environment, examination, outcomes and outputs, as well as a commitment to transparency and clear expectations. Lee takes her cues about curriculum from educational theorising arguing that three considerations need attention: philosophy and purpose; learning outcomes (knowledge, skills, capabilities, values

and attitudes), and the activities of learning, teaching and assessment. She further adds that the crisis discourse which accompanies policy interventions in doctoral education tends to focus on one of these three elements in isolation from the other (producing particular sorts of distortions and effects), and that there is a need to see research activity and spaces as more consciously pedagogical. Curriculum, it seems, appears to inhabit an ambivalent presence in the doctoral education scene.

3. Why stewardship for doctoral education?

Australia's recent review of research training (ACOLA, 2016) was framed in large part around a pressing concern that Australia's HDR programs lacked a strong and coherent effort on strengthening industry-research collaboration (taken to include the broad spectrum of organizations: business, government, not-for-profit and community sectors). The review is jam-packed with practices and suggestions that tie HDR programs more closely to industry so that graduates have the best chance to develop industry-ready skills leading to employment and a measurable return to the public investment. Three innovative suggestions include industry placements, industry defined research problems, and the involvement of industry supervision in overseeing projects. While the review does flag the radical potential of these learning experiences for Australian HDR students, perhaps unsurprisingly, these suggestions in the main, do not contain a robust educational narrative, and there is no mention of the word 'curriculum' as a mechanism capable of providing structure to students' learning experiences. In addition, the review offers no vision of the PhD beyond training and in doing so, largely ignores a long tradition of critical scholarship about doctoral education.

In linking our project to the concept of stewardship outlined by Golde & Walker (2006), we use it not only to re-think teaching development within the PhD, we also put it to work to ask questions of the shape and purpose of the PhD itself - as a curriculum designed to develop stewards of the discipline. For Golde (2006), the goal is clear:

[a] PhD holder should be capable of *generating* new knowledge and defending knowledge claims against challenges and criticism, *conserving* the most important ideas and findings that are a legacy of past and current work, and *transforming* knowledge that has been generated and conserved by explaining and connecting it to ideas from other fields. All of this implies the ability to teach well to a variety of audiences, including those outside formal classrooms (p.10).

While these three facets of stewardship preserve disciplinary learning at the heart of the PhD, it is evident that the education of Golde's (2006) 'steward' promises a set of doctoral learning experiences that shift in intention, structure, pedagogy, education, and moral outcome. We take these dimensions as mirroring the complexity of curriculum. Yet, the goal is not simply to protect the discipline or maintain the status quo; the mission is to take forward the discipline in thoughtful and considered ways that include the desire for challenge and change.




A steward thinks about how to preserve the heart and essence of the field. But there are also important forward-looking meanings, as stewardship does not imply stasis. A steward is a caretaker who trains a critical eye toward the future. A steward must be willing to take risks and move the discipline forward (Golde, 2006:13).

In their landmark publication *Envisioning the future of doctoral education*, Golde & Walker (2006) invited established US scholars across several fields to address the following question: "If you could start de novo, what would the best way to structure the doctorate look like?" In Science, Elkana argues that more emphasis should be placed on PhD students "understanding and cherishing the contradictions in Science" (p. 67) – and indeed – that they should be expected to encounter different paradigms for knowledge and knowing. Bass argues that a steward of Mathematics cares for both the discipline and its *professional applications*. That is – a steward attends to the diversity of work environments that involve engaging an array of audiences/publics, with maths. In the humanities, Graff offers a number of proposals for change in the English PhD that better orients its graduates toward stewardship: foregrounding the discipline as a contested space to be explored in introductory coursework, requiring students to undertake teaching development, making it attractive for disciplinary academic experts to teach in typical first year undergraduate writing courses, better connecting undergraduate and postgraduate curricula, and helping students prepare for employment outside the academy. Indeed, Golde & Walker's (2006) publication is full with scholars imagining how stewardship can be incorporated as a central principle for the renewal of doctoral education. Indeed the focus for them is not just on acts of generation and conservation; it is also about translating the discipline to audiences beyond the academy, and entertaining the possibility that those audiences (perhaps like undergraduate students) offer new and exciting ways of pushing the discipline forward, that is, into a new cycle of generation.


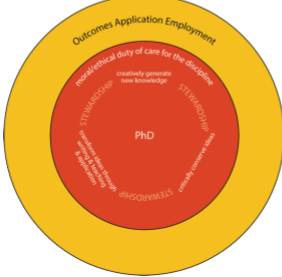
In the next section of this Briefing Paper, we outline how stewardship is put to work as part of the project.

4. Putting stewardship to work in the project

We are working with the idea of stewardship in three ways: first, as an analytical device to ask questions about the purpose and shape of the existing doctoral curriculum; second, we see stewardship as offering the possibility of a coherent narrative which can be used to identify and integrate curriculum contexts; and third, stewardship can also be considered as a mechanism that drives (or provides intentionality) to the multiplicity of purposes that currently bedevil discussions of the purpose of the contemporary PhD. Below, we describe these three uses in further detail.

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|  | <p>In most Australian PhD programs, apart from the supervisor, a set of institutional milestones, the conduct of research, and the production of a thesis to be assessed for contribution to knowledge, it is unclear what the student will encounter as part of their learning. The focus is squarely on research/new knowledge production even though a good deal of the curriculum is likely to be concealed from the student. While many universities now have a suite of generic qualities that PhD students are expected to demonstrate on graduation (through the thesis or in addition to it), it is not clear how the learning experiences in the PhD develop those qualities. Consistent with the view that the PhD is about the production of new knowledge, the thesis continues as the main form of assessment - despite the precarious nature of future academic work. The focus on stewardship (generation, conservation and transformation) invites us to interrogate the existing (and default) research intention of the PhD and how those intentions translate into learning experiences).</p> |
|  | <p>In the project, we argue that there may be at least four authentic learning spaces that can be conceived as doctoral curricula in the broadest sense: the research project/thesis, supervision, intellectual department climate, and generic skills/attributes development courses. While these are traditionally spaces in the PhD for research and researcher development, our attention to stewardship (translation) invites us to think about how other aspects of academic work (in particular, teaching and teaching development) can be integrated in these same spaces for PhD students. BP1 reminded us that most teaching development during the PhD happens in a bolt-on way, typically unaffected by the learning that takes place as part of the research project. In articulating these four learning spaces as providing the locations for thinking about the PhD curriculum, our focus is also on how those learning spaces can be utilized to advance a doctoral education for stewardship (generation, conservation and transformation).</p> |
|  | <p>Given what is known about lack of employment opportunities in the academy for PhD graduates, pressure has been mounting for some time to re-engineer the PhD in ways that better connect it with a range of employment outcomes. This raises questions about what a PhD is for and how it can be redesigned with multiple destinations in mind: the academy (research, teaching and service), and non-academic work (industry, government, community). While employability is undoubtedly a main driver for diversifying the experiences in the PhD, the more liberal tradition of a PhD education also remains firmly in view (critical thinking, social responsibility and citizenship).</p> |

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| | <p>The project's focus on stewardship (generation, conservation, and transformation) provides the basis for asking two questions: (i) what does it mean to act as a disciplinary steward no matter the employment destination; (ii) how does the employment destination add a level of complexity to what a disciplinary steward is, does, and stands up for, in that context? It may also be the case that the connection between teaching/teaching development and the PhD is broadened out. Under stewardship, teaching and teaching development are reframed and contextualized by the context of employment destination. While the academy might take 'teaching' to mean the learning of undergraduate students, each employment destination is likely to have a different audience eager to learn about the PhD graduate's work or their research expertise.</p> |
| | <p>In Golde & Walker's (2006) work, stewardship encompasses a set of roles and skills, as well as a set of principles. The former ensures competence and the latter provides the moral compass. The three facets of stewardship - generation, conservation, and transformation - are introduced into the doctorate to provide an intentionality to the learning experiences (including the four learning spaces) which comprise the curriculum, and its offers a narrative designed to integrate the multiple purposes to which doctoral education is now subject.</p> |
| | <p>Creatively generate new knowledge: students should understand that the PhD signifies that the recipient is able to ask interesting and important questions, formulate appropriate strategies for investigating these questions, conduct investigations with a high degree of competence, analyze and evaluate the results of the investigations, and communicate the results to others to advance the field.</p> <p>Conservation implies that students understand the history and fundamental ideas of the discipline but also recognizes that disciplinary stewards are aware of the shoulders on which they stand and must judge which ideas are worth keeping and which have outlived their usefulness, examining how their disciplines fit into the larger intellectual landscape.</p> <p>Transformation speaks of the importance of representing and communicating ideas effectively, and encompasses teaching in the broadest sense of the word. It is also attentive to the range of audiences and publics that engage with the discipline and their potential to ask questions that edge the discipline into new arenas. It also suggests that stewards must understand other disciplines, the differences between disciplinary views of the world, and how to appreciate and communicate across traditional boundaries.</p> |

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|  | <p>In taking on the label of a disciplinary steward, a PhD student recognizes and takes responsibility for moral and ethical care of the discipline. On this view, a PhD student understands their responsibility to engage in problem solving and/or greater understanding. Self-identifying as a steward implies adopting a sense of purpose that is larger than oneself.</p> <p>In this project, we see these three facets of stewardship - including moral and ethical care for the discipline as the tie between them - and as operating across both academic and non-academic settings. Stewardship provides an overarching intention to the design of doctoral education.</p> |
|  | <p>Finally, an education for stewardship is taken to be the primary narrative of the PhD. While the four contexts are likely to remain as learning spaces in which activity takes place, they are no longer assumed to be the only spaces capable of developing stewards of, and for, the discipline. Further, the outcome or destination of the PhD is no longer solely focused on the academy but expands to include the multiplicity of destinations. Assumed in this model, is that students will be much more active in shaping the nature of their candidature, identifying and engaging with opportunities that develop them as scholars and stewards of their discipline.</p> |

5. Next stages of the project

Returning to teaching development: beyond bolt-on to integration

In order to move on from the bolt-on approaches that have dominated teaching development practices in the PhD so far (conclusion of Briefing Paper 1), a key element of the project is about reimagining how teaching development can happen differently in the current Australian PhD. In doing so, we ask two questions. First, how can existing research and researcher development practices in the four learning spaces below be described, expanded, or contribute to, teaching development? And second, how can the four learning spaces below generate new opportunities for progressing ways of thinking and practising as a teacher?

1. The research project
2. Supervision (individual, panel, group supervision)
3. Intellectual climate (department context)
4. Courses/workshops designed to develop generic research skills

The empirical component of the project invites PhD students, early career academics, and key institutional players involved in teaching development programs for PhD students to describe how these spaces carry developmental conversations and practices related to teaching. These participants are also prompted to imagine how these spaces might be re-imagined to carry

conversations about teaching development (if it is not currently the case). They are further prompted to consider how stewardship can be used to interrogate the existing PhD's focus on research, and what a PhD designed for stewardship might look like.

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Appendix F

Briefing Paper 3



Embedding teacher-development strategies into the PhD learning spaces

In Briefing Paper 1 (2016) *Teacher-development strategies and PhD programs*, we described the range of ways that teaching development for PhD students is described in the literature, noted some shortcomings, and concluded with the following note from Nyquist (2002): “the challenge remains to make ... innovative ventures integral, not merely add-ons, to traditional practices.” (p.19). In this third paper, we begin to address the challenge of providing a less conventional, integrated curriculum by taking the four learning spaces of the current research-based PhD curriculum, and providing examples of how those spaces might also encompass teaching development. In Briefing Paper 4 (2016) we use the concept of stewardship introduced in Briefing Paper 2 (2016) to broaden the learning spaces-based analysis towards a stewardship-based PhD and how it might differ from a research-based PhD.

1. Introduction

For teaching development to be realistically encompassed within the contemporary PhD it, as with the development of many of the other ‘missing’ capabilities identified in the shortcomings of current doctoral education (ACOLA 2016), may need to be seen as being more integral to the PhD curriculum. In other words, teaching development needs to be seen as a part of the research focus of the PhD (the core research-based activities), rather than a set of add-on skills.

To enable this integrated approach it first requires a consideration of how we currently frame thinking about the ‘curriculum’ of doctoral education, (as discussed in Briefing Paper 2, 2016) and recognition of how ‘uncomfortable’ that framing is, before we can attempt to engage with it. As an alternative way of framing the ‘doctoral curriculum’ we draw upon the four learning spaces: (1) The research project / thesis (2) The supervision of that project (3) The department context / disciplinary communities in which this is situated and (4) the co-curriculum that has been added through skills/attributes workshops and courses, identified in Briefing Paper 2 (2016, p6).

Taking teaching as one of these ‘missing’ capabilities, the core research-based activities in each of the four learning spaces (research project, supervision, departmental context and skills development) are then described, and two examples given of how teaching development might be a part of those core activities.

We conclude with the suggestion that there are perhaps underutilised opportunities to develop teaching practice within existing familiar researcher development practices.

2. Curriculum

In Briefing Paper 2 (2016) we touched on the idea of 'curriculum' as emerging (somewhat uncomfortably) within the current conversations about the perceived limitations of the current PhD as a preparation for future employment. The introduction of the term 'curriculum' in doctoral education has elicited a similar range of reactions and misunderstandings to those that greeted its entry into Higher Education some decades ago. This is perhaps understandable, as while 'curriculum' is a much-theorised and much-contested concept in the discipline of Education, it remains far less theorised (and perhaps differently contested) in the field of Higher Education. In Higher Education 'curriculum' has come to be understood by some academics as a means of making and managing (controlling) decisions about teaching processes (what and how) and learning outcomes (what and how). Stark and Lattuca's (1997) observation that curriculum is typically understood by universities in an 'instrumental' way (the organisation of the content and the timeframe and manner in which that will be provided to students) is possibly even more true, nearly 20 years later, with the overlay of pre-packaged 'digital learning resources' and 'learning management systems' in addition to the contractual documentation of curriculum in 'subject outlines'. Such a conception of curriculum does not do justice to higher education (Barnett 2009) and nor would it appear likely to be welcomed by doctoral education.

However, for many academics curriculum is more than the 'content and the structure'. It encompasses, to varying extents, the learner. Curriculum can be primarily about the learner's experience of the 'what and how' of teaching, and for some it is broader still, and encompasses the learner's engagement with all aspects of the higher education experience – not just the experience of what is formally taught. For some academics a learner-focussed curriculum moves a step further, and is seen as a site for contestation and learner identity formation. Fraser and Bosanquet (2006) provide a helpful analysis of the range of understandings described by academics in their study in relation to Habermas' knowledge-constitutive interests: the technical, practical (communicative) and emancipatory.

'A technical curriculum interest focuses on structuring and managing objects and the environment. In these terms, the function of the curriculum is to define and control student learning. The outcomes of the experience of the curriculum are viewed as tangible products, and conform to the teacher's original intentions for it' (p279)

'A practical curriculum interest aims at reaching an understanding that enables appropriate action to be taken ... The student and teacher interact to make meaning of the subject matter, thus equipping students to act on these

meanings Teachers with a practical cognitive interest are concerned that interactions in the learning environment provide appropriate opportunities for learning. The curriculum places emphasis on actions or practices which arise as a consequence of reflection.’ (p280)

‘An *emancipatory* curriculum interest strives for empowerment, rational autonomy and freedom... . The curriculum that they envisage is a process, which strives for social and intellectual empowerment, and is truly negotiated. The power resides with the students as learning takes place within a community of scholars, with the ultimate aim of empowering them to be effective as individuals and members of society. Their vision is potentially boundary-less, with change the outcome and process of curriculum.’ (p281-282)

In considering curriculum’s foray into doctoral education from these three perspectives, it would seem at first glance, that many supervisory practices are inherently grounded in both practical and emancipatory interests. Indeed, they would seem more explicitly so than in coursework. However, while many PhD supervisors and students may indeed resonate with an emancipatory interest, the reality for many is perhaps a doctoral experience increasingly dominated by a curriculum foregrounding technical interests of doctoral milestones, candidate management, and completion rates. This echoes McWilliam and Singh’s (2002) speculation identified in Briefing Paper 2 (2016), that one of the reasons why ‘curriculum’ has seemed such an ill-fit for doctoral education is that in taught coursework contexts ‘curriculum’s imperative is to contain knowledge’... while the ‘imperative of research is to discover new knowledge’ (p.3).

‘Curriculum’ is without doubt a powerful tool for unpacking and designing learning. However, even in more familiar domains of education it is also frequently misused and misunderstood. While some academics working in doctoral education might hold a helpful conception of curriculum that is more akin to Barnett’s (2009) ideas of ‘becoming’ and ‘subject formation’, developed by the learner’s engagement with Osberg and Biesta’s (2010) ‘tangle of taught content and pedagogy’, others may not. As such it is perhaps not the most useful tool for those seeking to unpack or re-design doctoral education in their own universities.

However, if we are to remake the PhD to better support the development of future university teachers as well as researchers in industry we still require a way of *unpacking the opportunities for learning that currently comprise the PhD*. With that aim we have proposed a framing of doctoral education as four learning spaces that make up (to varying extents) the traditional research-focused PhD:

1. Research project / thesis
2. Supervision
3. Department context / disciplinary communities
4. Skills/attributes workshops courses

While these are traditionally learning spaces in the PhD *for research and researcher development, in this paper we will examine how these learning spaces*

might also inherently support the development of doctoral students as future teachers. In doing so we begin with the conclusion of Briefing Paper 1 (2016): That the majority of teaching development strategies reported in the literature are variations of skills workshops and courses, and are an un-integrated 'bolt-on' to the other (research development) learning of the PhD.

For each of the four learning spaces described in section 3-6 below, we first articulate the parameters of the space and then consider examples of how the opportunities for researcher development might also support teacher development. As noted in Briefing Paper 1 (2016), the nature of teaching is changing. Less time is being spent on the face-to-face aspect of teaching and more on design of the learning experience (often with considerable technical support, for example in simulations and digital media-based discussion forums). More emphasis is being given to engagement with learning before teaching (as in the flipped classroom idea), more use is being made of learning analytics, assessment and feedback have become more a part of the learning process, and learning is being supported in a greater variety of contexts outside classrooms and universities. These changes create more opportunity for the research-focused components of the PhD to be used in an integrated way in the development of teaching.

3. Research project/thesis

The research project and production of the thesis is the undeniable 'heart' of the PhD. The core research-based activity that supports learning in this space is the formulation and design of research questions and of the processes used to address those questions. It involves developing a deep understanding of the topic and field, the current literature, the relevance to the discipline, and it involves conducting the research and documenting the project and the learning from that project in some form of thesis. Of the four learning spaces this is perhaps the most familiar to those within and outside of, doctoral education. Indeed it is so familiar that it is sometimes perceived to be the entire experience.

The two examples provided below show how the support of research development for the research project and thesis might also support the development of teaching expertise. In essence, the first example focuses on doctoral students explaining, to someone outside the area of the research, the nature of the project and assessing how well that explanation was conducted. While the process of developing the explanation is seen to assist an understanding of the research, it could also be described (and discussed with the PhD student) as the development of teaching material. The assessment element parallels both assessment and evaluation in teaching. The second example involves doctoral students designing a small undergraduate research project related to their research and mentoring the students who are engaged with it. Again, while focussed on their research, the design and mentoring aspects can also be linked to teaching development.

Example 1. PhD student synthesises the essence of the research project, and explains it, in a mini seminar/ lecture/ course module. This involves reflecting

on method/results/literature, explaining it by showing relevance to other ideas and/or to application. There are many presentation modalities (podcast, written, twitter, blog, flipped curriculum, etc.) that could be employed. Presenting is also important because it is imperative for a doctoral student to learn to profess their discipline in public arenas. A great deal of discipline knowledge is highly relevant to economy, society and environment. This is not always well-understood or articulated and 'teaching' the public is another important dimension of doctoral graduate responsibility. A crucial element is the design of an assessment task to test the effectiveness of the communication of the key features of the research.

Example 2. PhD students design an undergraduate research "teaching" project for undergraduate students drawing on an aspect of their own research project and implement this by mentoring the undergraduate student teams, in collaboration with fellow PhD students under the supervision of staff in the department.

4. Supervision

The core research-based activity in supervision involves supporting the PhD student to develop as a researcher, using the research project as a vehicle for that learning and development. In some disciplines, the supervisor may have a ready project for the student, while in another context the student negotiates the topic of their PhD research. This involves the supervisor in an assortment of activities: providing guidance to support the student in developing the overall direction of the research project; helping students understand the topic of the research (and its scope) and how it is situated in the field alongside its warrant, supporting students coming to grips with the design of the study including knowledge of methodology and methods (and their implications for interpretive claims about findings), attention to students' written communication, empowering students to navigate the institutional landscape with confidence, guiding their entrance into networks of global research communities, and caring for the desires students' express related to personal ambitions, professional aspirations, and career development. Lee (2012) summarised these activities in a supervisory model that included five elements: functional (project management), enculturation (draw student into disciplinary community), critical thinking (question and analysis of work focus), emancipation (question and analysis of self) and relationship development: (enthusiasm, nurturing).

In a Swedish study on supervisors' different ways of experiencing supervision, Franke and Arvidsson (2011) found a tendency toward two distinct orientations: a focus on research-practice where the supervisor's intention is to transfer a research tradition and mediate a research practice, and a focus on relation-oriented practice where the supervisor's intention is on their role as a dialogue partner, mentor, and mediator of expertise. In a UK study by Akerlind and McAlpine (2015) exploring supervisors' variation in purpose and pedagogy, supervisors offered three overarching intentions for their practice: to help students become self-sufficient as a researcher through training in skills and requirements; to support students to become innovative researchers by

cultivating their ability to create new ideas; and to aid students' development as an individual by helping them enjoy and commit to the doctoral experience. Both these studies provide some insight into the complexity of supervision.

As any academic knows, the process of supervision is intricate, involving expertise in mentoring, diagnosing misunderstandings of concepts, facilitating learning of new concepts, supporting the development of advanced analytic and academic communication skills, all set against the institutional landscape and disciplinary conventions. While focused on the development of research capabilities, the act of supervision itself is fertile ground for learning about teaching.

The two examples provided below show how the quality of that process may be enhanced and also provide opportunities for students to develop as teachers, by first giving students the chance (with support) to meta-cognitively assess their project and its outcome, and second, to see their interaction with their supervisor through the eyes of a/the supervisor.

Example 3. Supervisor reflecting on and negotiating / co-designing with the student, the activities associated with thesis/research project supervision. This can take the form of a discussion of the student's supervisory needs and expectations supported by the use of rating scales (e.g. <https://www.adelaide.edu.au/graduatecentre/forms/supervision/docs/scales.pdf>). It can include reflecting on the student's experience of supervision and inviting the student to provide suggestions for how to improve the supervisory process.

Example 4. Inviting students to step into the role of 'peer-supervisor' for other students in the department. This can be achieved by asking students to provide feedback on written drafts and presentations by their peers. It is also achieved through student contributions to group supervision meetings discussions where several students and supervisors come together to review work on their doctoral research projects.

5. Departmental context/ disciplinary communities

The core research-based activities in the local department and in disciplinary communities are in supporting the PhD students to build networks and connections with other researchers in order to progress their current and future research. The local department is also the place where students learn and are engaged in the micro-practices of enacting the discipline with others. This engagement with the local department and the international disciplinary community is important because it enables doctoral students to explore and test their understandings of the concepts and ideas they are using in their research, to communicate and share their findings for use by other researchers, and to build collaborations for future research projects and funding.

The two examples provided show how the quality of that process may be enhanced by first introducing the student to the wider academic context in

which both teaching and research occurs, and second, in providing the department with material that comes from the student thinking through how to organise a elective topic that could be used in departmental courses.

Example 5. Presenting research findings at a research conference. A conference presentation of the student's research findings is a common developmental activity for many students. While focussed on communicating the research to the discipline community, the skills developed in planning and delivering a conference presentation, identifying and explaining the important concepts, engaging with the audience to monitor their understanding during the presentation, and responding to questions from conference delegates are also skills that support the planning and effective presentation of a lecture or tutorial. Working with the student to plan and develop a conference presentation of their research findings in this way, from a teaching perspective, will not only improve the quality of their research communication, but could also support the development of skills and expertise as future teachers in the discipline. The research presentation activity may be extended to encompass working with the student to plan a teaching session on the same topic to further highlight the relevance to teaching.

Example 6. Participating as a team member in the planning and writing of a grant application with the supervisor and department colleagues, or with other doctoral students, is a useful research development activity for PhD students. As aspiring researchers, the ability to work collaboratively as part of a grant writing team is important, as is the ability to plan and justify a proposed project. These skills are also important to aspiring teachers. Teaching, particularly for new academics is often conducted as part of a team. Planning and justifying a curriculum project or new course proposal is a core part of many academics' teaching duties. The collaborative research grant writing task could be usefully extended to more explicitly encompass teaching development by inviting doctoral students to participate in curriculum development teams in the department or with the supervisor or other students on teaching development grant applications in the department.

6. Skills development (via workshops, on-line modules, etc.)

The core research development activities in the skills area are workshops and seminars that provide the PhD students with the tools they need to be an effective researcher. These training activities support students in developing their understandings and skills in relevant research processes (for example preparing ethics applications, referencing, searching databases, intellectual property, writing for publication, developing a social media profile, preparing a CV, etc.). This aspect of the doctoral learning experience is the aspect most commonly used for developing teaching through student participation in teaching skills workshops. However, in addition to including teaching development workshops and modules, the two examples provided show how participation in research workshops might also be extended to develop students' skills and understandings as future teachers as well as researchers.

Example 7. Intellectual property and copyright are popular topics in research skills workshops as such an understanding is important for future researchers seeking to commercialise their work and for researchers seeking to disseminate their work and publications through various social media. Locating and deploying open source resources is also a key component of teaching in today's digital learning environments and increasingly curriculum artefacts are shared through digital repositories, identifying, tagging and acknowledging the use of such resources is an important skill for future teachers to develop.

Example 8. Developing expertise in the practices and scholarship of 'supervision' through participation in supervision development programs, will enhance the contribution a PhD student can make to the quality of her own research learning in the supervisory relationship, as well as equipping her for this important aspect of her future academic teaching career.

7. Conclusion

In all the contexts we have explored, there is an opportunity given (though not always taken up) for the PhD student to do some teaching (usually tutoring and/or laboratory demonstrating). In many cases there are also opportunities for students to learn about the principles of university teaching through teaching workshops and courses. The examples provided above are not intended to replace any of those opportunities. They are designed instead to show how the learning opportunities, practices and contexts we draw upon to support students' development as researchers can also support their development as teachers. In some cases the identical activity supports both outcomes, in other cases it only takes a small adjustment or re-focussing to gain significant additional benefit. There may be opportunities in the processes of conducting those examples to link the activities with the more conventional teaching opportunities, but that could also be left to the students themselves to discover. The examples provided illustrate some ways in which the development of teaching practice can be integrated with the development of research practice.

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Appendix G

Briefing Paper 4



Opportunities for developing stewardship in the Australian PhD

1. The story so far...

In Briefing Paper 1 (2016) *Teacher-development strategies and PhD programs* we categorised, from a literature review, three main approaches to university teaching preparation and development for PhD students: (i) teaching development through coursework; (ii) teaching development through practice; and (iii) teaching development through informal learning. We noted that in many cases, universities were continuing to offer often very good courses, workshops and programs about teaching development to PhD students but that these often sat alongside rather than being intentionally integrated with the doctoral program, the 'research heart' of the PhD. Three examples of such doctoral programs include QUT's Teaching Advantage Program (Greer, Cathcart & Neale, 2016); UWA's Postgraduate Teaching Internship Scheme (Partridge, Hunt & Goody, 2013); and the University of Auckland's Doctoral Academic Leadership Initiative¹. We concluded the Briefing Paper with an argument flagging the importance of integrating teaching development for PhD students into the central experience of research learning.

Briefing Paper 2 (2016) *Stewardship: a way of analysing, integrating and providing intention to the curriculum of the Australian PhD* introduced the concept of stewardship, revisited the scholarly arguments on the notion of curriculum in doctoral education, and suggested that learning in the traditional PhD might be conceived as happening in four learning spaces: as part of the research project/thesis, in supervision, the intellectual climate, and in courses, workshops and programs. Thought about as curriculum and animated by the three dimensions of stewardship (generation, conservation, and transformation) we advanced the idea that these four learning spaces - conventionally for researcher development - could be more intentionally utilised as spaces for teaching development, thus addressing the challenge of integration outlined at the end of Briefing Paper 1.

Briefing Paper 3 (2016) *Embedding teacher-development strategies into PhD learning spaces* confronts the challenge of integration head-on. It showcases how these four

¹ The University of Auckland's Doctoral Academic Leadership Initiative invites an intake of students via an application process. The yearlong initiative includes four themes: academic leadership, research, teaching and professionalism. Further information <https://www.clear.auckland.ac.nz/en/dali/about.html>

learning spaces: research project/thesis, supervision, the intellectual climate, and courses, workshops and programs can also contribute to ways of thinking and practising related to teaching and teacher development. Drawing on interview data collected in five universities (four Australian, and one in NZ) with doctoral students, early career researchers, and staff that organise teaching development programs specifically for doctoral students, this paper provided examples in practice. In doing so, the aim was to demonstrate how these learning spaces are generative not just for research but also for aspects of learning about teaching.

2. Aim of Briefing Paper 4

In this paper, we build on the ideas and arguments developed across all three previous papers to return more purposefully to the idea of stewardship. We turn our attention again to the four learning spaces identified earlier to probe how they might be productively put towards stewardship - that is - developing a broader set of outcomes more suited to the realities of today's research workforce. By continuing to work with Golde's (2006) three facets of stewardship - generation, conservation and transformation - we hold on to the importance of doctoral students being inducted into disciplinary knowledge and conversations. While there is a very real sense that the world now requires doctoral graduates who can solve ambiguous and hard to define problems that no single discipline can, in this project, we do not see disciplinarity as a limitation. Stewardship's focus on *transformation* provides opportunities for disciplines to shift, change, expand and to be responsive as part of routine rejuvenation and renewal.

One argument against the centrality of the 'discipline' remaining as the learning ground is that the challenges of the contemporary and super-complex world require PhD graduates with interdisciplinary and trans-disciplinary mind and skill sets, capable of moving between different modes of knowledge conceptualisation, production and application (Nowotny et al., 2001). Yet as Barnett (2009: xvi) reminds us,

[t]hey [disciplines] are not fixed edifices, which the student simply has to surmount or knock against - or even fall from. They are rather fluid regions, with intermingling and conflicting currents, in which the student can - to a significant extent - chart her own journey.

A second view against keeping the PhD focused on disciplinarity (under stewardship at least) is that given the precarious employment situation, graduates may not go on to post-PhD work in line with their research area. Consequently, it becomes harder to make the case that the discipline ought to remain as the substantial knowledge focus of the PhD than say, refocusing the design of the doctorate toward generic skills and transferrable capabilities. Yet we know from institutional curriculum renewal efforts related to generic attributes in the undergraduate domain, in particular, from Barrie's

(2004; 2007) work that seeing the discipline and generic capabilities as separate entities is likely to perpetuate a remedial (and bolt-on) strategy rather than engage students in a participatory view of learning. In fact without some substantial notion of the discipline, it is unclear how the shift to transferrable skills relates to the qualities of doctoral-ness.

In this project, our view is that the responsibility of the steward is not solely to defend the discipline and to conserve the status quo necessarily; it is that students should engage in learning experiences that support them to exercise informed and scholarly judgement about taking the discipline forward into new territory, and for the discipline (and the student) to be changed by those encounters. In other words, advancing the discipline depends on knowing it well enough to recognise that its future is filled with precisely the kind of challenges that will not be easy to resolve.

Given this, we make the practical argument that a doctoral curriculum underpinned by stewardship does not, on its own, add 'more' to the PhD. While we recognise that stewardship influences the shape of the learning experiences designed for the doctorate, we argue instead that it can offer a coherence – an overarching educational discourse – which is essential to dealing with the multiplicity of purposes that the Australian PhD is now expected to meet. Indeed for us, stewardship offers a way of thinking about how the practices and activities of the PhD can enable graduates and universities to address the future needs of academia, industry, community organisations and government simultaneously. A focus on stewardship is intended to provide students with the confidence and flexibility to move between these multiple destinations with both 'disciplined' minds and a care for the transformative nature of the 'discipline'. In this paper, as in Briefing Paper 3 (2016), we draw on data collected as part of the broader OLT project to offer examples of how the notion of stewardship enables us to see and reframe the PhD in ways that allow graduates to flourish in a range of employment settings.

In the context of the ACOLA review (McGagh, 2016), the Briefing Paper makes an effort to acknowledge several stakeholders invested in the doctoral education scene – each with distinct concerns about the nature and purpose of PhD that inevitably circle the other:

- The Australian Federal Government's National Innovation and Science Agenda (NISA) advocates stronger industry collaboration as part of research training;
- Universities' own doctoral education/training agendas (shepherded in the main by Deans of Graduate Studies) focuses on timely completion and the dimensions of the research student experience expressed via the scales in the Postgraduate Research Experience Questionnaire (PREQ)²: supervision, intellectual climate, skill development, infrastructure, thesis examination, goals and expectations, and overall satisfaction;

² The PREQ is administered twice a year to all Australian research degree graduates. Institutions use this data to inform their programs and also to benchmark against other institutions.

- Doctoral supervisors' concerns about adding more and more to the PhD (including teaching development) in ways that compromise the quality of students' research and their capacity to complete on-time; and
- Doctoral students' own desire for a contemporary learning experience that adds value to their post-PhD (or existing) employment situation. This acknowledges that doctoral students take on a PhD for many reasons. They might be an experienced professional undertaking PhD study aiming for career enhancement or renewal, or a student seeking first-time employment post-PhD. This diversity in the Australian cohort suggests that doctoral students need the skills, savvy and agility to imagine and articulate how to put their learning to work in academia, government, industry, community organisations, or elsewhere, and develop a level of flexibility to move between them.

As full-time academic positions in the Australian higher education sector have flat-lined and casual and contract positions grown³ (DET, 2015) it is not surprising that the straight line between a PhD and a secure position in the academy has come undone. Even when standard university positions appear on the horizon for PhD graduates, the nature of the academic work itself is changing and expanding. The 40-40-20 research-teaching-service split which has historically dominated the Australian academic workload psyche now operates inside an agenda of massification and there are now very real questions to be asked about whether the doctorate as it stands, prepares students well enough for the changing nature of academic work especially where claims about intensification (Barry et al, 2001) and increasing metrification (Burrows, 2012; Smith et al, 2013) circulate with regularity. Moreover, data reported in 2015⁴ also indicate that there are as many PhD graduates employed in the higher education (and education) sectors as there are in combined industries elsewhere, providing an even more compelling reason to address how doctoral education can better prepare students for non-higher education sector work. Under these conditions, there is a moral obligation to re-think the PhD rather than to continually rely on students' resilience to operate within the constraints of what appears to be a broken system.

By using stewardship to analyse the Australian PhD, there is great potential to radically reorganise and redesign the learning experiences which doctoral students participate in. By reframing the intention, we also open up the way we conceive of the existing learning spaces - pushing, pulling and expanding on those spaces in ways that generate new opportunities and outcomes for Australian doctoral students.

³ Department of Education 2015 data on full-time staff equivalence
<https://docs.education.gov.au/node/38391>

⁴ Graduate Careers Destination data
<http://www.graduatecareers.com.au/research/researchreports/postgraduatedestinations/>

3. Stewardship for the Australian PhD

The last 30 years has seen an explosion in doctoral education research across the world. Virtually every aspect of doctoral education practice has undergone some kind of critical scrutiny. Key areas are listed below:

- supervision and supervision development (Pearson & Brew, 2002; Kiley, 2011; Bastalich, 2015)
- doctoral writing (Lee & Aitchison, 2009; Cotterall, 2011; Aitchison & Pare, 2012);
- thesis examination (Paltridge, 2002; Mullins & Kiley, 2002; Holbrook et al., 2008; Carter, 2008);
- factors that support timely completion (Manathunga, 2005; Golde, 2005; McCormack, 2005; Kearns et al., 2008);
- teaching preparation (Stocks & Hopwood, 2008; Partridge et al., 2013; Greer et al., 2016);
- learning to navigate the publishing game (Lee & Kamler, 2008; Kamler, 2008; Hopwood, 2010);
- establishing an online scholarly identity (Ward & West, 2008; Bennett & Folley, 2014);
- the learning experiences of particular cohorts of doctoral students (Wang & Li, 2011; Gardner & Gopaul, 2012 ; Trudgett et al., 2016);
- transitioning out of the academy to employment (Neumann & Khim Tam, 2011; Yerkes et al., 2012; Jackson & Michelson, 2015; Pitt & Mewburn, 2016); and
- national and institutional policy settings for doctoral education (Neumann, 2009; Cuthbert & Molla, 2015)

An analysis of 995 articles on doctoral education across 45 journals undertaken by Jones (2013) reveals six major preoccupations: teaching, doctoral program design, writing and research, employment and careers, student-supervisor relationship, and the doctoral student experience. Taken together, there is clearly no shortage of research to inform developments in doctoral education. Models (both practical and conceptual) about how to develop doctoral programs and experiences that support student success and high quality research outcomes are being added to the literature regularly. One recent example is the Monash Doctoral Program⁵ comprising professional development, coursework and industry partnerships, and another is the University of Queensland's Career Advantage PhD Program⁶. A more conceptual approach is Cumming's (2010) holistic 'doctoral enterprise' model that includes practices related to curriculum, pedagogy, research, and work. Further, a 2014 report commissioned by the Australian government (DET, 2014) *Initiatives to enhance the professional development of research students* outlines several additional examples of innovative doctoral programs designed

⁵ The Monash PhD program <https://www.monash.edu/graduate-research/future-students/phd>

⁶ The University of Queensland Career Development Framework <https://cdf.gradschool.uq.edu.au/career-development-framework-cdf>

to address 'industry' that already exist in the Australian higher education research training landscape.

Many of these examples depict an impressive smorgasbord of workshops and short courses focused on the multiplicity of skills for employment destinations for which the national data tell us are urgently needed. Yet, unattended to in many of these initiatives are questions of moral purpose, care and integration. While it is the case that students can and do exercise agency in relation to the integration of their own learning, it is hard to imagine how they will arrive at a response to these larger questions of moral purpose on their own, *necessarily*. Indeed, relying on students to put these pieces together themselves and to bring coherence and meaning to their own doctoral program is both inefficient and precarious since responses to the kinds of questions we suggest below require a doctoral learning environment which values their importance.

- How does a student learn to (and practise) care for the field their research project is situated in?
- What are some ways students see the future of the field developing?
- What responsibility do students have to shape that future?
- How might students undertake to translate the journey, findings, and applications of their research to multi-disciplinary audiences, where those audiences might also be invited to make a judgement about quality and innovation?

By choosing to embark on a PhD - the pinnacle of higher education - a student is not only engaged in the completion of a research project that demands precise technical skill and training, they become stewards entrusted by the field to lead and shepherd new disciplinary conversations underpinned by scholarship. While the doctorate in Shulman's (2008: x) terms "carries with it both a sense of intellectual mastery and of moral responsibility", scholarship is seen not as a "function of setting but of purpose and commitment" (Walker et al., 2008:8), supporting students to cultivate both mastery and moral responsibility we believe is best enacted through modes, forms and scholarly acts of disciplinary stewardship.

The US-based PhD - the object of Golde & Walker's (2006) work on stewardship - is clearly organised quite differently to the Australian PhD. Not only are the entry points incomparable, the latter contains no compulsory coursework (although mandated candidature requirements for ethics, work health and safety, data management, and academic honesty are on the rise), no qualifying exams, and it is examined internationally typically with no tradition of viva or oral defence. In taking up the challenge offered by stewardship seriously, the Australian PhD's largely open structure provides an unusual kind of design problem. In this project, we consider the ways in which the learning spaces we identified earlier: the research project/thesis, supervision, the intellectual climate, and courses, workshops and programs can be reoriented toward

the qualities and tasks of stewardship: generation, conservation and transformation. In so doing, we ask: how does stewardship offer a way of thinking about 'doctoralness'?

4. Remaking the PhD learning spaces for stewardship

Each of the learning spaces below was originally described in Briefing Paper 3 (2016). The examples of stewardship that accompany each learning space below are taken from (and extend upon) the data collected by institutional partners (Sydney, La Trobe, Deakin, Western Australia, and Auckland) involved in this project.

(a) Research project/thesis

The example provided below for this learning space focuses on how the demonstrated outcomes of the stewardship PhD might be broadened beyond the traditional (and in Australia, the most common) written thesis, to include outcomes capturing the stewardship ideas of knowledge generation, conservation, and transformation.

Example 1: The written thesis is no longer the sole artefact of the PhD / or the thesis is redefined to become a collection of different kinds of materials (not excluding the traditional thesis). To communicate the learning process and project of the research to different audiences (and to document research influence and engagement), the student may choose to curate an online portfolio that might include a selection of the following:

- a short video of the research for 3MT competition;
- a blog describing the process of undertaking the research - key challenges, decision-points, moments of change;
- a twitter feed documenting the nature and extent of public engagement;
- some form of project visualisation with relevant images, diagrams, graphs, photographs, maps etc.;
- a podcast containing relevant recordings of conversations with students (undergraduate and postgraduate), influential scholars, and key leaders from relevant industries focused on the research;
- links to the student's written thesis, scholarly publications and other writings for professional audiences;
- links to presentations, public talks, or teaching (and reflections on the feedback from those audiences) that the student is engaged in; and
- a statement about what the student sees as their key achievement, and their future plans post PhD.

The key goal is to develop a broader engagement with both the discipline and the world-at-large, in order to demonstrate a growing capacity for teaching (via more contemporary forms of communication/translation), and a growing capacity to connect the student's research to significant issues and interests within the discipline, in related disciplines, and among non-academic audiences.

(b) Supervision

The process of supervision is intricate involving expertise in mentoring, diagnosing misunderstandings of concepts, facilitating learning of new concepts, supporting the development of advanced analytic and academic communication skills, set against the institutional landscape and disciplinary conventions. And as Grant (2003) reminds us, the supervisor is not only guiding the student's work in ways that offer a fresh contribution to a research community, they are also keeping an eye toward the management of risk to their own disciplinary and institutional reputations. The following three examples illustrate some of the ways that supervisors could build on their existing thinking and practice to incorporate more personal, moral and ethical development, more conservation of the discipline, and transformation of research knowledge in relation to policy while maintaining a focus on the core research ideas of the PhD.

Example 2: The student and supervisor are active in co-designing and negotiating the student's learning experience through the PhD. The conversation takes into account the student's personal, professional and future career aspirations, the supervisor's institutional responsibilities, the department's requirements and available resources, and the kinds of activities intended to develop the domains of stewardship. This plan might include the following kinds of activities:

- identifying a strategy for communicating the student's research to key international scholars and external audiences;
- participation in specific professional meetings and/or disciplinary conferences;
- an experience of working in an industry setting / or an exchange program at another university;
- an opportunity to engage in undergraduate teaching; and
- occasions to learn about communicating research with/to the media (TV radio etc.)

Example 3: A group of supervisors invite their students to engage more rigorously in the history of the discipline by exploring canonical texts or key influential thinkers. One example might be a journal club or reading group that is largely student-led. As part of supervision, students commit to communicating their learning from this process in some way: at a department seminar, at a disciplinary conference, or are invited to feed these ideas into a supervisor's undergraduate Honours class.

Example 4: The supervisor invites students to collaborate on a government policy submission to address an industry/professional problem (related to the supervisor's research). The goal is for students to learn about the process, politics and players involved in policy analysis and formulation, and to consider how – in working on an authentic submission led by their supervisor – their own research might contain practical and political implications that merit consideration in the project.

(c) Intellectual climate (discipline, department and contexts outside the university)

The core research-based activities in the local department, in disciplinary communities and in industry placements – both face to face and online - support PhD students to build networks and connections with other researchers in order to progress their current and future research. The local context is also the place where students learn and are engaged in the micro-practices of enacting the discipline with others. This engagement with the local department and through it, the international disciplinary community is important because it enables doctoral students to explore and test their understandings of the concepts and ideas they are using in their research as well as their understanding of their discipline, to communicate and share their findings for use by other researchers, and to build collaborations for future research projects.

In addition to the organisational and material structures within universities themselves, many student research projects regularly take them outside of the academy or into different kinds of online interdisciplinary communities that are very often sources of intellectual curiosity and sustenance for students. These communities can be department led, student-led, and practice/community-led. The examples below showcase how these elements can be combined under the umbrella term ‘intellectual climate’.

Example 5: The department invites students to put on series of seminars/events to discuss how their research builds on the past and takes the discipline into new knowledge domains. The goal is for the department to interrogate how its PhD students develop a vision of the field that renews the department’s own research agenda and priorities.

Example 6: Each year, the department reserves a space for one/two undergraduate subjects to be led by a group of PhD students who are responsible for curriculum design, development, teaching/delivery, assessment and evaluation (under guidance and with appropriate support, mentoring and professional development). The process for being involved in the subject may well be competitive because PhD students need to develop a vision for the subject, and for student learning, based on the degree outcomes. The PhD students’ own research features heavily in the subject, and these students are expected to communicate back to the department how the subject (and undergraduate students’ experiences of it) adds to the general undergraduate experience.

Example 7: A student on an industry sponsored project is part of a multidisciplinary team working on an applied project. The student must attend project meetings providing verbal reports and tabling written progress reports on their contribution to the project. The student is a liaison between industry and the academy – sharing their learning and insights across contexts.

Example 8: The department invites external audiences (e.g., industry, government,

community organisations) to a series of showcases designed to engage PhD students in an authentic problem/challenge set by each organisation (provided in advance). The student researches the issue, and is invited into a conversation about that issue with the relevant audience. The PhD student prepares an artefact (as part of their doctoral learning experience), which the department then makes available for use by others.

Example 9: After graduation, students are expected to give an exit seminar to the department (which includes current PhD students). The exit seminar describes what the student has learned through the process, how the research extends the field, and lays out future plans for applying the research.

(d) Skills development (via workshops, short courses, online modules etc.)

Many universities offer short courses and workshops to doctoral students intended to develop particular skill-sets. These training activities support students to develop their understandings and skills in relevant research and teaching processes, for example, in preparing ethics applications, referencing, searching databases, intellectual property, writing for publication, developing a social media profile, preparing a CV, supporting student learning etc. Much of the provision for skills development is run by different professional service units across the university, for example: libraries, learning and teaching centres, graduate schools, student learning support, research offices, careers centres, and marketing, communications and engagement. Where they are lacking in resources, universities might also invite or purchase special expertise when needed: thesis boot camp, ThinkWell, writing for *The Conversation*, etc.

Example 9: By encouraging students to learn how to 'crowd fund' their research (perhaps with other students in cognate areas, in different institutions) it not only develops their capacity for savvy entrepreneurship, innovation and collaboration, it also provides them with a direct feedback line on how their research ideas resonate with a different public. The act of engaging a different and potentially 'invested public' provides opportunities for the discipline to be articulated in terms of social value, and private and public benefit.

5. The examination and assessment of the Australian PhD

At one level, the examples of stewardship promoted in this Briefing Paper can be successfully accommodated into the current learning experience of the traditional PhD. It is also likely that versions of these examples already exist and are thriving in pockets of doctoral education in Australian universities. Yet at another level, if stewardship is designed into the intention of the PhD - the purpose, the rationale for activities, the learning environment and has buy-in from the people involved - by implication, the products, outcomes, and modes of examination and assessment are also in need of transformation. This may well mean that the 80,000 word written thesis that has come to dominate the doctoral education psyche in Australian higher education across most

disciplines and professions (excepting the creative, musical and dramatic arts), is no longer the only mode for demonstrating research quality, doctoral-ness, or a commitment to the dimensions of stewardship. Indeed, the obligation to stewardship not only raises questions about what students encounter as part of their doctoral learning experience, it also points to questions about the 'product' of the thesis, its examination (what is assessed and at which points along the doctoral journey), the criteria and standards of assessment, and who is invited to participate in judgements about quality and the achievement of doctoral-ness. If we are to take seriously the challenges facing the contemporary PhD's multiple purposes, then expanding the examination process beyond the current aims, and beyond the academy, requires thoughtful and careful consideration.

One avenue for thinking through the examination of a doctorate focused on stewardship may be to conceive of the PhD as containing multiple learning pathways that the student chooses on enrolment and then endorses at confirmation (or at some other agreed upon point in the candidature). We see some of this choice already happening in the doctoral education landscape in Australia (The Monash University⁷ and University of Queensland⁸ PhD programs are examples). However, it is unclear whether students' outputs remain tethered to the written thesis. While each of those pathways - academia, industry, community, government or elsewhere - is likely to contain a boutique set of outcomes, new possibilities for supervision, a distinct and designed suite of learning experiences, options for crafting the artefact of the 'thesis', and further opportunities for involving examiners outside of academia, the overarching commitment is to stewardship and scholarship redefined. No matter the pathway, the standards of scholarship must prevail to ensure - at the very least - alignment with Level 10 of the Australian Qualifications Framework⁹.

While the term stewardship emerged as a heuristic device for doctoral education from North America, much of the ensuing effort resulting from the Carnegie initiative focused on the evaluation and quality assurance of doctoral programs (Maki & Borkowski, 2006) rather than rethinking what the student will 'make/create' from a doctorate focused on stewardship and how it is to be assessed. There are exciting possibilities ahead for a thoughtful Australian contribution to the practical implementation of stewardship in doctoral education.

6. Briefing Paper 5

In the final briefing paper (no. 5), we will bring together the ideas and examples from the project and consider how these can be made operational. We will outline a

⁷ The Monash PhD program <https://www.monash.edu/graduate-research/future-students/phd>

⁸ The University of Queensland Career Development Framework <https://cdf.gradschool.uq.edu.au/career-development-framework-cdf>

⁹ <http://www.aqf.edu.au/aqf/in-detail/aqf-levels/>

curriculum framework for the PhD – focused on a student’s candidature cycle - that demonstrates how stewardship adds value to the contemporary debates about an Australian PhD for the future. The target audience for this final Briefing Paper is Academic Boards across Australian universities.

Prepared by Tai Peseta and Jeanette Fyffe with Simon Barrie and Keith Trigwell for Project team (Simon Barrie, Jeanette Fyffe, Joe Graffam, Alistair Kwan, Peter McCallum, Lee Partridge, Tai Peseta and Keith Trigwell)

Follow the discussion on twitter #reframingphd

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Appendix H

Briefing Paper 5



Reframing the Australian PhD for stewardship through candidature milestones: shaping a curriculum conversation

1. Introduction

This is the final in a series of Briefing Papers that interrogate the Australian PhD and its alignment with the challenges of preparing knowledge workers for the industry and academic workplaces of the future.

In Briefing Paper 1, our focus was squarely on the academy. Through a literature review, we explored the opportunities for teaching development in the PhD. Unsurprisingly, a key finding of the review was that while a good deal of excellent teaching development for doctoral students is available, design-wise, these opportunities remain bolt-on to, rather than integrated with, the research endeavour. This finding about teaching development served as a reminder that a focus on teaching alone would likely be inadequate to the task of reframing the PhD.

In Briefing Paper 2, our goal was to put the analytical concept of 'stewardship' to work in analysing the PhD. Its three features - generation, conservation and transformation - enabled us to see how and why the focus on embedding teacher or teaching development in the existing PhD may well be a flawed approach in terms of addressing both the internal challenges of the academic workforce and external demands that the PhD prepare students for work futures in a multiplicity of settings including industry, community and the public sector. In that paper, stewardship provided an argument for thinking in new ways about the PhD that extend it beyond research training.

In Briefing Papers 3 and 4, we introduced the idea of four learning spaces (research project/thesis; supervision; intellectual climate; and courses, workshops and programs) as *de facto* curriculum for interrogating and expanding where learning happens in the PhD. We made a case that conceived more broadly, each of these learning spaces is promising not just for the development of 'research' and 'researchers' (as has traditionally been the case) but also for the development of 'teaching' and 'stewardship'. To realise this 'promise' required little more than intentionally approaching the design of activities inside these learning spaces to achieve those ends. We explored the possibility that these four learning spaces - taken together - might also be conceived as a curriculum space that develops stewards.

By foregrounding 'curriculum' we recognise that it remains a somewhat ambivalent space among researchers of the PhD, in part because it is tethered to the bureaucratic machinery of 'coursework' with its obsessive insistence on alignment between learning outcomes, activities, assessment and graduate attributes/capabilities. A second concern among PhD researchers is that curriculum captures knowledge that has already been discovered while a PhD - by definition - is about the discovery of new knowledge. The PhD is both designed, and

achieved in ways that defy the structure and sequencing that a focus on curriculum often brings with it (McWilliam & Singh, 2002; Grant, 2011). While there has been an unprecedented growth in courses and workshops that sit alongside the Australian PhD, it still seems very unfashionable to suggest that these learning opportunities together, actually constitute a curriculum. Even today, with the sophistication afforded by different models, theorising and conceptualisations of curriculum that see it as teacher-led, student-led, negotiated between teacher and student or influenced by other stakeholders (Fraser & Bosanquet, 2006), it is unusual to see the range of offerings in the PhD described by institutions as an exercise in curriculum (although some PhD researchers see how generative it might be for understanding doctoral learning, for example, González-Ocampo *et al.*, 2015; Kiley, 2017). The consequence of this absence is that it becomes harder to ask broad educational questions about the doctorate and even harder to consider how we design and operationalize for 'education' rather than just research. For us, curriculum offers a grammar to consider how learning and education can be designed, and how new forms of subjectivity can be enacted.

In this final briefing paper, we again return to the question of curriculum that was introduced in Briefing Paper 2, and explored in terms of 'learning spaces' in Briefing Papers 3. In this paper, we offer a different way into a curriculum conversation that aims to take seriously how institutions work with the doctorate. We suggest that PhD milestones can in many cases, also be seen as *de facto* 'curriculum' because, they (i) focus universities' resources and efforts on what is important for the student to engage with to be successful or to progress to the next stage of their candidature; (ii) they 'can' signal to students what is important for the development of the research and researcher, or in our case, the development of a disciplinary steward; and (iii) like assessment, they provide a means for monitoring and assuring students' progress.

In considering milestones in this way it is important to acknowledge the point made in the earlier briefing papers on Stewardship, that like any aspect of the doctoral experience (curriculum), milestones will be shaped by the implicit or explicit outcomes the supervisor intends the process to develop. And perhaps more influential than the intentions of the supervisor, are the intentions of the doctoral candidate. For both supervisors and students, these PhD milestones (and their associated progress reporting) are too often encountered as bureaucratic requirements that add little to the experience of research or supervision that is meaningful (Mewburn *et al.*, 2014a; 2014b). For universities (via Graduate Research Schools), these milestones often sit in the space of quality assurance. They mitigate the risk of non-completion by acting as a guard against the accusation that universities have not delivered appropriate or scaffolded support to ensure PhD student completion and success.

In this paper, we aim to consider two overarching challenges. First, why do existing milestones appear to be experienced by staff and students as unhelpful bureaucracy that is largely unrelated to the sort of meaningful learning that the PhD should focus on? Second, if we take as our starting point that the PhD should prepare students for the multiple futures of knowledge work, what might useful milestones be in that learning journey?

2. Defining milestones

Milestones were introduced to help track a student's progress and to manage timely PhD completion. Also referred to as requirements, challenges (Ali, Kohun & Levy, 2007), goals and outcomes (Boud & Lee, 2009) and targets (ThinkWell), they are usually formal

requirements that are set by the institution but have also been extended to include a range of activities and events that PhD students engage in; achievements that merit some kind of certification or award; skill development and knowledge demonstration that is evidenced by a conference presentation or seminar presentation. Ali *et al.*, (2007) conceptualise milestones as gateways and hurdles that are 'make or break' experiences that students need to master by a particular stage or year of their candidature: e.g. research proposal and exam in year 2. In some cases, milestones are described by what it is students are required to produce or complete (an artefact); in other cases, they are described by the outcome (i.e., what it is that a student is supposed to learn by doing or completing that milestone artefact). The process for developing the knowledge and skills to meet the milestone is often left unaddressed. This confusion (and conflation) between artefact, process and outcome runs across the Australian university landscape.

Internationally, there is a similar appetite for the way milestones support institutions and departments to both manage candidature and develop new researchers. Baker & Lattuca (2010) note that

[a] college establishes general requirements for timely degree completion and graduation, but it is the academic department that is responsible for establishing specific program milestones throughout the doctoral experience. In the United States, for example, these milestones usually include the successful completion of core or disciplinary courses and electives, comprehensive or qualifying examinations, candidacy, committee member selection, dissertation proposal development and writing, and dissertation defense. The UK and Australia place less emphasis on coursework when compared to the United States. Rather, students are encouraged to specialize in a subject area much earlier in the experience and work in an apprenticeship type model (Park 2007). The majority of programs domestically and abroad, however, require students to develop and pursue original research and contributions in their chosen fields. As Walker *et al.* (2008) noted, 'At their best, these milestones and the requirements behind them allow students to develop the knowledge, skills, and dispositions to thrive as scholars in their chosen field' (10). While these generic milestones can be found across academic departments in one form or another, each academic department assigns a different value to them. The priority placed on these milestones contributes to students' understandings of the faculty career and thus the development of an academic professional identity. (pp 816, 817).

Moreover, the ways milestones are constructed by institutions and presented to supervisors and students indicate something about their function and intention. Some are described as 'roadmaps' while others appear as 'checklists'. For example, the ANU PhD milestones are described in roadmap¹ style while Sydney University's Biology Department uses the language of a checklist². In some cases, the described purpose does not match the use. Interestingly, a US-based website focused on industry PhD milestones³ claims that they develop capacity but their description is entirely focused on timely completion. It would be difficult for a student to gauge the particular skills, knowledge and disposition that bring together their development as a researcher. Drawing on this industry case, there is no sense of the field, nor any rationale about why these particular milestones have been chosen as the path to developing industry-ready researchers. Milestones are being used primarily to track,

¹ <http://www.anu.edu.au/students/program-administration/program-management/research-student-milestones>

² https://sydney.edu.au/science/biology/studying_biology/pdfs/postgraduate-required-milestones.pdf

³ <https://www.scheller.gatech.edu/degree-programs/phd/milestones.html>

measure and verify student progress in order to retain standards and to potentially predict the candidate's capacity to complete (see Girves & Wemmerus, 1988). Their lack of completion warns institutions, supervisors and students who is at risk of slow completion or failure altogether.

3. Exploring and re-framing common milestones in the Australian PhD

We reviewed a sample of Australian universities PhD milestones across different types of institutions⁴. We selected three universities from each category and capture the university-wide milestones for PhD confirmation of candidature (Appendix 1). In some cases, the faculty or School require that a student completes additional tasks. Appendix 1 captures primarily the university-wide milestones since these are typically, shared by all students in the same institution.

No matter the institution type, there is an obvious (and perhaps expected) high degree of commonality in the tasks and requirements that doctoral students must meet in order to be confirmed as a PhD candidate. Common is a written proposal of some kind - although lengths differ - that contains a title, the research question(s), a literature review, theory/methodological component, a study design, a comment about the perceived significance of the work to the field, a timeline, budget and a scholarly reference list. Of those institutions sampled, UniSA - perhaps unusually - is the only university that requires students to prepare a statement against a set of research graduate qualities. Also evident is the presentation of this written proposal to a panel of supervisors whose job it is to assess the proposed study's merits, the candidate's capability to carry out the study and to offer feedback to the student to improve it. In some cases, the presentation itself (and the student's capacity to communicate their ideas) is assessed, alongside their ability to reflect on the process of crafting the study and what they need to do to carry it out. There is perhaps more variation in this sample of universities as to whether the ethics application must be approved or whether the confirmation process affirms that the study design as presented is ready to proceed to a full ethics application. There are also some institutional differences in the requirement that there are particular courses or modules that must be completed by the student. In the Go8 sample, there is a focus on research integrity and safety that is less visible in other types of institutions. And finally, in their documentation about the confirmation of candidature milestones and process to students, some institutions favour a more bureaucratic /technical 'fill in the form' approach, while others are aiming to take seriously what it is that they are inviting students to learn about research and what it means to participate in the privilege of the research endeavour. In some of the documentation, there are nascent attempts to induct students into a conversation about the purpose of a proposal, why meticulous planning is important, the power of clear and persuasive research writing, the nature of peer review and its iterative function, or the importance of communicating research to multiple audiences. As they stand, this collection of milestones operate as institutional shorthand for what many experienced and passionate researchers already know.

Yet taken together, these existing milestones focus mainly on the early stage of candidature – and moreover, only on limited aspects of that stage of candidature. More significantly, they remain anchored to traditional views of the PhD where knowledge work is developed for the

⁴ We used the Universities Australia classification: research universities; technology universities; innovative research universities; and regional network of universities.

academy as its primary audience, rather than the multiple destinations that graduates will need to seek future work in. Moreover, it appears that these milestones are communicated in ways that negate how students themselves are likely to see and grasp the reality of their own futures. With an increasingly diverse cohort of doctoral students, many of whom arrive to doctoral study with substantial professional experience, PhD milestones (as forms of formative assessment, progress and quality indicators) could easily form the basis of a much fuller curriculum conversation about what it is that 'doctoral-ness' entails (for example, as a form of care for transforming the field) no matter the destination or context of its application.

One relatively easy way of reframing the existing milestones is to see them as opening a dialogue about students' own learning desires, educational ambitions and career pathways. In this sense, it contains energy as a curriculum conversation because it begins with the student and invites them to curate their doctoral journey. While milestones remain important, they exist less as a burdensome bureaucratic institutional requirement that must be ticked off, and more as an opportunity for the student to take control of how their candidature unfolds. Milestone requirements become enveloped into a set of learning outcomes that the student sets in conversation with their supervisor, the research community around them and are in line with what the student sees as their future. Below is one example of an existing milestone expanded.

Our analysis of PhD confirmation milestones suggests that a handful of universities are already beginning to experiment with different versions of an artefact akin to an *Individual Learning Plan* (ILP). The ILP is an occasion for the student to reflect on what they are about to embark on at the beginning of their candidature, and with their supervisor (and perhaps other research students too), to chart a pathway toward the PhD that takes into account the full range of institutional milestone requirements, the Level 9 AQF outcomes, the criteria for thesis examination, and the full range of resources on hand too. The planning would begin in the first month of candidature, with the first full version prepared after 3 months. It will also include any additional planned learning experiences and activities that the student wishes to engage in such as the development of teaching / lecturing for those who seek academic positions, industry placements for those keen on that direction, or for those with a community or public sector interest, activities related to public policy development. Identifying these interests (or indeed, previous experiences) at the outset is about enabling the doctoral student to establish a plan for extending knowledge and skill acquisition and to embed those plans into their ILP. It also provides the supervisory team with an early view about the students' learning desires; it alerts them to negotiate with the student a different set of milestones; and it allows the supervision team time to draw on their research and peer networks to support the student in pursuing those interests. With agreement from the supervisory team, students will be able to modify their ILP throughout their candidature whenever appropriate to do so. The ILP is a modifiable work plan. While the activities which the student engages in are not necessarily individually assessed, the student will be invited at various milestone points (including through formal progress reviews) to offer an account of how the learning from it relates to the main study and to the commitment to stewardship more generally.

For candidates clear about their pathway and future, the construction of an ILP offers an occasion for empowerment and self-determination. While this might be less true for candidates without a clear notion of where they want to go during their degree and beyond, the task of constructing an ILP is likely to appear a daunting one that is best achieved in a

research community where the conversation around it is a routine part of a department's activities and approach to supervision. While the ILP is an individual one, it is an ordinary task of learning in a doctoral program.

By looking at doctoral candidature milestones in this way (with the intention of stewardship), we propose that they should:

- be based on meaningful learning directed towards meaningful outcomes;
- be authentic, grounded in actual research activities and tasks where possible; and
- be practical and manageable – offering artefacts that are amenable to judgment about progress by both student and supervisor.

4. Reframing Milestones

In our sessions with key staff at workshops in Sydney, Melbourne, Adelaide and Perth in October 2017, we explored how milestones might be put to work to better support the candidature and promote useful learning in relation to more meaningful outcomes.

Table 1 provides a framework for enacting two different PhD intentions through milestones. It indicates that the first step of such a reframing is driven by a clear intention to drive and shape how milestones are put to work. The table notes the current focus on the employment destinations of PhD graduates as one set of intentions that might be considered, while the notion of stewardship (that we have worked with in this project) offers another.

The framework proposes that milestones in the first stage of candidature might focus on supporting students in preparing and planning for their doctoral learning journey (see Stage 1 in the table). These are the milestones many researchers and students are already familiar with. However, with the consideration of a different 'intention', be it 'stewardship' or 'the realities of work, the student and supervisor should aim to reframe how the artefacts/documents might be engaged with.

The framework also proposes that milestones might serve a different purpose in the middle stages of candidature (see Stage 2). Here the focus might be on supporting the student's engagement with the variety of intellectual communities the research (and the student) is connected with. The mechanisms for that engagement are familiar to many researchers – a communication plan for the dissemination of their scholarship to multiple audiences (academic, industry, community), crafting a strategy to narrate and maximise the impact of research, or the work of building networks and engaging with the research community to foster collaboration. These activities offer new milestones for this stage of the candidature which are useful given that 'intellectual climate' is consistently reported to be one of the weaker aspects of the Australian doctoral student learning experience on national surveys.

The final stage (see Stage 3) of the candidature might also be supported with a broader array of milestones that focus on supporting students in articulating and building on the learning developed through their candidature. The production of the thesis is clearly a significant outcome and many universities already use the preparatory presentation of findings in seminars as an 'outcome' milestone prior to the submission of the thesis for examination. But the learning that is embedded or developed in the production of the thesis often needs to be teased out by students and re-articulated for audiences beyond the academy. This might encompass reports on the outcomes from internships and placements completed during the candidature, or a milestone that relates to the research 'contribution' the candidate has made

to their field during their studies – as well as their plans for how they might build on that contribution in the next stage of their career – research or otherwise.

Table 1: A framework for enacting PhD intentions via milestones

| Diverse realities of work | Facet of stewardship | Stage 1 PLAN | Stage 2 INTELLECTUAL COMMUNITY | Stage 3 OUTCOMES |
|--------------------------------------|----------------------|---|--------------------------------------|-------------------------------|
| <i>Intentions that frame the PhD</i> | | <i>Artefacts/ documents that serve as milestones</i> | | |
| Academia | Generation | Individual Learning Plan | Research communications strategy | Internship Report |
| Industry | Conservation | Confirmation of candidature (Research Proposal, 'application' possibilities etc.) | Research impact strategy | Thesis artefact |
| Community | Transformation | Project management plan and budget | Discipline engagement strategy | Research contribution Seminar |
| | | <i>The Individual Learning Plan (ILP) directs learning over the candidature.</i> | Engagement & intellectual climate | Career development plan |
| | | <i>The artefacts produced are housed in a portfolio/ website that can be curated by the student for multiple audiences.</i> | | |

In summary, the framework described in Table 1 suggests that:

- a conversation is needed between the student, the supervisors, (and the department) about the intentions that drive the candidature;
- the Individual Learning Plan (Stage 1) directs the learning across the candidature in relation to the intentions;
- the intentional integration of learning through a range of activities, in the 'artefact', becomes a 'milestone';
- the milestone 'artefact' might be presented through a brief one-page outline of a strategy or at a departmental seminar (in the latter suggestion, the whole department is engaged);
- the milestones would be individual in that students negotiate what they focus on and when;
- the timing of some milestones might need to be adjusted to reflect the timing of research process and candidate prior experience;

- the milestones are collaboratively developed (in a conversation between the student, supervisor, careers experts, the department etc.); and
- a portfolio might hold the ‘artefacts’ for the student as external evidence of meaningful learning.

5. Milestone conversations with a ‘stewardship’ intention

In this project, the focus has been on reframing the PhD in ways that take seriously the notion of ‘stewardship’ and its three facets – generation, conservation and transformation. For students and supervisors interested in stewardship, there are of course many ways to go about this. We propose that the conversations about milestones (and the subsequent generation of artefacts and activities) might include the conversations and activities in Table 2.

Table 2: How stewardship can frame activities that might be milestones

| Facet of stewardship | Conversation starters to enact stewardship | Possible activities to bring stewardship to life |
|-----------------------|--|---|
| GENERATION | Articulate how your PhD journey will provide you with opportunities to act as a disciplinary steward no matter the context of application. | <ul style="list-style-type: none"> • Host a podcast or start a blog • Develop a YouTube Channel • Give a presentation as part of 3MT • Organise a Masterclass in your disciplinary area • Curate a twitter stream for an industry or disciplinary conference • Seek outreach opportunities in communities or high schools • Start a journal club • Develop a reading group on major ethical events/controversies in your field • Propose a series of discussions in your department on what publication in your discipline looks like • Engage in activities to help you develop as a university teacher (peer observation/review of teaching) • Present at a conference • Collaborate with other students to put together a list of 10 readings that every new doctoral student in your field should know about • Write scholarly outputs • Contribute to a Policy paper • Use Pinterest to develop a map of the field via its concepts, disasters, |
| | Explain how your PhD addresses a question or puzzle that multiple audiences can engage with, conceptually and practically. | |
| | Convince a diverse and external audience that you have the knowledge, skills and ethical disposition to carry out your study with care and integrity. | |
| CONSERVATION | Illustrate in creative ways how your PhD is adequately anchored in, and builds on, the scholarship of your field and the multiple contexts of its application. | |
| | Offer a suite of evidence to show what, and how, you have contributed to the intellectual climate of your local and international scholarly research communities. | |
| | Develop some way of illustrating how your study has benefited from those engagements, as well as the insights you have offered to other students. | |
| TRANSFORMATION | Propose how your PhD opens up new questions (conceptual and applied) for the field. Show how your PhD interacts with other cognate fields in ways that generate a fresh contribution to knowledge. | |

| | | |
|--|--|---|
| | <p>Identify the points in your PhD journey, the variety of ways, and the different audiences you plan to communicate with so that your study engages with different 'publics'. Justify how your approach is appropriate to multiple audiences; share your reflections on the impact of your engagement with those audiences; and how their engagement has enabled you to think differently about your study.</p> <p>Prepare an artefact that highlights how your PhD journey has contributed to your development as a disciplinary steward/ knowledge worker for the future.</p> | <p>conflicts, personalities of scholars, or blindspots</p> <ul style="list-style-type: none"> • Write for your professional association or an online outlet (e.g., The Conversation) |
|--|--|---|

The conversations and activities suggested in Table 2 are intended to feed into the broader framework about candidature milestones in Table 1.

6. Conclusion

Reframing the PhD has long been a topic of conversation in the Australian higher education sector, and no doubt, will continue to be for some time yet. There are questions to be asked about whether the suggested transformations to it result in 'bolt-on' additions that follow government funding or whether there is any room in that conversation to re-imagine the PhD in more complex ways informed by educational ideas such as 'curriculum' and 'stewardship'. In this paper, we have attempted to bring those two concepts more explicitly into these discussions via a focus on milestones.

If milestones shape both the intentions and outcomes of doctoral learning, they provide yet another entry point for reframing of the PhD. In a context where PhD graduates cannot rely on the academy as their main source of stable employment and where knowledge is being produced outside the academy in ways that are also changing universities, there is very real case for questioning how the PhD's current design and structure prepares students for the reality of their future employment. The task of re-imagining candidature milestones, is one response to the complexity of such a challenge.

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Appendix 1: A selection of PhD confirmation of candidature milestones

| | | | |
|---|--|---|--|
| Research universities | <p>U Sydney</p> <p>Three kinds of milestones: (i) research project (ii) research training (iii) compliance</p> <p><i>Research Project</i></p> <ul style="list-style-type: none"> • Finalise research proposal • Finalise data management plan. • Conduct resource review <p><i>Research training</i></p> <ul style="list-style-type: none"> • Complete training needs analysis • Ensure student has adequate written English to write thesis, or that measures are in place to assist the student to meet this requirement within a specified timeframe. <p><i>Compliance</i></p> <ul style="list-style-type: none"> • Complete Responsible Research Practice module. • Complete WHS module • Complete induction(s). • Confirm ethics plan • Conduct intellectual property review, and consider need for IP agreements. | <p>U Western Australia</p> <ul style="list-style-type: none"> • Completion of Academic Conduct Essentials online unit • A substantial piece of writing at an appropriate conceptual level • Research proposal approved • Seminar to School on proposed research | <p>Australian National U</p> <ul style="list-style-type: none"> • Annual Plan • Research integrity training course (10 short modules) • Thesis Proposal Review / Proposal |
| Innovative Research Universities | <p>James Cook U</p> <ul style="list-style-type: none"> • Complete the assessment involved in subjects 'Planning the Research' (research proposal) and 'Situating the Research' (literature review) • Public presentation • Compulsory components of HDR Professional Development, and HDR Professional Development Audit and Plan • Proposal via a seminar • Post-seminar meeting | <p>Western Sydney U</p> <ul style="list-style-type: none"> • Complete online module via Postgraduate Essentials • Complete online module Responsible Conduct of Research' • Submit Confirmation of Candidature (CoC) document (max 10K words research proposal) • CoC presentation to Advisory Committee | <p>Flinders U</p> <ul style="list-style-type: none"> • Confirmation of Candidature (CoC) includes a written proposal, and an oral presentation on the research |
| Australian Technology Universities | <p>U South Australia</p> <ul style="list-style-type: none"> • Completed Statement of Agreement • Research Induction Plan • Research Proposal (10-20 pages) | <p>RMIT University</p> <ul style="list-style-type: none"> • A written research proposal • Present your research to your Review Panel and | <p>Queensland U Technology</p> <ul style="list-style-type: none"> • A written report of the research program for the remainder of the candidature and a report on the work done up to this point |

| | | | |
|------------------------------|--|---|---|
| | <ul style="list-style-type: none"> ○ Statement of the research topic and rationale for the research ○ Research methodology ○ Trial table of contents ○ Brief bibliography ● Defend proposal to a review panel | <p>wider research community.</p> <ul style="list-style-type: none"> ● Evidence of ethics approval ● Enrolled in (or evidence of exempt from) Research Methods and Strategies course | <ul style="list-style-type: none"> ● A seminar where this report is presented for feedback |
| Regional universities | <p><i>U Southern Queensland</i></p> <ul style="list-style-type: none"> ● a written Confirmation Proposal, normally no longer than 20 pages ● an oral presentation, normally of 30 to 45 minutes duration to a review panel. | <p><i>U New England</i></p> <ul style="list-style-type: none"> ● Successful completion of any prescribed safety or training courses ● Successful completion of all required coursework units ● Completion of all other required developmental activities (for example, studies in statistics, academic writing, intellectual property and electronic literacy, including use of electronic databases); ● Preparation of a Confirmation Report, including ● Application, or received consent (as appropriate and set down in the supervisor agreement) of ethics approval for the research methodology ● An oral presentation on your Confirmation report ● The Verbal Defense | <p><i>Federation University</i></p> <ul style="list-style-type: none"> ● written proposal (between 5-10K words) ● and oral presentation (25mins) |