

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 Industry Community	Generation	Individual Learning Plan	Research communications strategy	Internship Report
	Conservation	Confirmation of candidature (Research Proposal, 'application' possibilities etc.)	Research impact strategy	Thesis artefact
	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
	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.	<ul style="list-style-type: none"> • 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
	<p>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.</p> <p>Develop some way of illustrating how your study has benefited from those engagements, as well as the insights you have offered to other students.</p>	
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.	<ul style="list-style-type: none"> • Write scholarly outputs • Contribute to a Policy paper • Use Pinterest to develop a map of the field via its concepts, disasters,

	<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>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)
	<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>	

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

<p>Research universities</p>	<p><i>U Sydney</i> Three kinds of milestones: (i) research project (ii) research training (iii) compliance <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><i>U Western Australia</i></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><i>Australian National U</i></p> <ul style="list-style-type: none"> • Annual Plan • Research integrity training course (10 short modules) • Thesis Proposal Review / Proposal
<p>Innovative Research Universities</p>	<p><i>James Cook U</i></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><i>Western Sydney U</i></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><i>Flinders U</i></p> <ul style="list-style-type: none"> • Confirmation of Candidature (CoC) includes a written proposal, and an oral presentation on the research
<p>Australian Technology Universities</p>	<p><i>U South Australia</i></p> <ul style="list-style-type: none"> • Completed Statement of Agreement • Research Induction Plan • Research Proposal (10-20 pages) 	<p><i>RMIT University</i></p> <ul style="list-style-type: none"> • A written research proposal • Present your research to your Review Panel and 	<p><i>Queensland U Technology</i></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)