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COMPLETING A PHD BY PUBLICATION: A REVIEW OF AUSTRALIAN POLICY AND IMPLICATIONS FOR PRACTICE

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COMPLETING A PHD BY PUBLICATION: A REVIEW OF AUSTRALIAN POLICY AND IMPLICATIONS FOR PRACTICE

There is increasing impetus for higher degree by research students to publish during candidature. Research performance, including higher degree completions and publication output, commonly determines university funding and doctorates with publishing experience are better positioned for a career in softening academic labour markets. The PhD by Publication provides a pathway for candidates to foster and demonstrate their publishing capabilities. It also provides existing academics a means of achieving doctoral status while managing the 'publish or perish' milieu endemic to their work. This paper clarifies the precise nature and significance of the PhD by Publication pathway in the Australian context and discusses the associated benefits and problems, enriched by personal experience. It summarises factors pertinent to assessing the pathway's suitability. The review of current policy suggests institutional guidelines in universities nationwide are inadequate for producing theses of comparable quality to conventional dissertations and capitalising on the pathway's significant benefits.

Keywords

Doctoral education, PhD, publication, research student, thesis

Introduction

The systematic distribution of research funding based on faculty research performance prevails in the UK, New Zealand, Australia and the US. Research performance is determined by higher degree by research (HDR) completions, publication output and external research funding. This has major implications for current and prospective HDR students.

First, there is a growing pressure on HDR students to publish during candidature (Lee & Kamler, 2008). This may originate from the need to align the quality of a thesis, in terms of significance, rigour and topicality, with the standards of a peer-reviewed academic journal (see Bradley, 2009), yet is inexorably linked with faculty research performance being measured, and associated research income determined, by publications data (Aitchison, Kamler & Lee, 2010). Second, students are increasingly expected to complete their PhD in a shorter time frame (Aitchison *et al.*), the number of completions in a particular period also contributing to faculty research performance data. Finally, publication output significantly influences academic selection and promotion, access to future research funding and professional development opportunities (Kamler, 2008). HDR students appear, therefore, to be entrenched in the ‘publish or perish’ milieu which is consuming academia worldwide.

Current and prospective HDR students, particularly in the newer universities, may comprise academics already working in full-time positions. The PhD is increasingly considered a prerequisite in academic staff as it indicates one’s ability to undertake quality research independently and potential to publish. Academics are expected to manage increasing workloads (Tight, 2010) and high expectations of publishing in quality academic journals (McGrail, Rickard & Jones, 2006); the list of demands on contemporary academics described as “inexhaustible” by Brew (2010, p. 105). For those educators not yet holding a PhD, the prospect of achieving work/life balance and completing an HDR is understandably overwhelming.

A further strain on HDR students, whether an existing academic or one of the significant proportion hoping to pursue a career in academia (Rowbotham, 2011), is the softening labour market for core, permanent academic staff within the Australian higher education (HE) sector. This is predominantly due to the popularity of casual contracts and a reduction in international enrolments; the latter caused by changes in skilled migration and student visa policies on the back of a strengthening Australian dollar. Concerns for job prospects may be aggravated further, particularly in less established/lower status universities, by the imminent removal of capped student enrolments, urging HDR students to reflect on ways to improve their career prospects and employability.

Literature and relevant policy delivers a succinct message: publication in quality academic journals is an established measure of individual performance and a pathway to academic promotion and competitive research funding. Australian academics, however, continue to underperform in publication output; reasons extend beyond workload pressures and include confidence, poor infrastructure and a lack of motivation (McGrail *et al.*, 2006).

Given the pressures to publish, and wide acknowledgement that a doctorate is vital for a successful academic career, completing a PhD by Publication should attract considerable attention. In contrast to the traditional PhD by dissertation, a PhD by Publication is an award where the candidate’s thesis is “based largely on the supervised research project, but examined on the basis of a series of peer-reviewed academic papers which have been

published or accepted for publication, usually accompanied by an over-arching paper that presents the overall introduction and conclusions” (Park, 2007, p. 33). As Boud and Lee (2009) commented on the UK doctoral market, “the rapidly expanding doctorates by publication ... are a visible response to policy-led pressures for research productivity within the ‘performative’ university” (p. 7). There is, however, confusion over what precisely constitutes a PhD by Publication and how it differs in respect of the traditional dissertation pathway. The lack of university guidelines and supervisory experience in completing PhDs by this method, in conjunction with a lack of related literature (Bradley, 2009), means the process continues to be treated with considerable caution in Australia.

The impetus for this paper is personal interest, having recently completed a PhD by Publication in Australia, and exposure to academics who embrace the topic with either keen interest or dismissive proclamations. Polarity in academics’ response to the publication pathway is striking and informal discussions reveal that although faculty is aware of certain benefits and difficulties associated with the process, it appears ill-informed of the rudiments involved. Given the significant opportunities this pathway may offer HDR candidates, clarification and evaluation of this pathway is significant.

The purpose of this paper is to review current policy in completing PhDs by Publication in Australian universities and discuss the associated benefits and problems, enriched by personal experience. The paper aims to clarify the nature of the PhD by Publication in Australian universities and the considerations pertinent to assessing its suitability for HDR students. It should therefore be of interest to prospective research students, supervisors and senior Faculty members accountable for research performance.

Background

The Doctor of Philosophy, more commonly referred to as the PhD, is a program in which candidates have “conducted a coherent programme of research which made a significant original and independent contribution to the knowledge base of the research area and demonstrated a knowledge of the current literature of the research area” (Wilson, 2002, p. 72). This focus on research typically distinguishes the PhD from other doctoral programs which incorporate a more significant coursework component. Doctoral programs sit at the peak of most countries’ academic qualification framework (Green & Powell, 2005) and come in varying forms across different disciplines, universities and countries (Powell & Green, 2007). The PhD is described by Mowbray and Halse (2010) as “the pinnacle of university learning and scholarship” (p. 653) despite international concerns with program relevance and graduate employability (Peters, 2007).

Powell and Green’s (2007) international review of doctoral programs revealed a broad understanding that the award denotes a significant contribution to knowledge in a particular field, yet considerable differences were detected in the funding, examination and length of programs. The USA, UK and Australia were noted as expanding their range of doctoral programs beyond the traditional PhD, retained as the single doctoral award in certain countries such as South Africa, Germany and China, to programs integrating coursework components. Their research of PhD ‘destinations’ confirms the role of the doctorate as a gateway to a career in academia across the UK and other parts of Europe, although seemingly less so in the US.

It is likely the push for PhD graduates which demonstrate mastery in industry-required, non-technical skills will catalyse further change in the purpose and form of the PhD through the incorporation of skills training and related learning outcomes, synonymous with undergraduate programs. This trend, as for other degrees, is not without challenge. Lee (2007) argues the most desired outcome of any research degree should be successfully developed research skills and Brien (2008) maintains the skills push has shifted the focus of the PhD from ‘substantive knowledge’ to ‘technical skills and craft knowledge’.

Completing a PhD by dissertation or publication encompasses similar elements including candidates identifying an area of interest and summarising the literature within which it broadly situates, defining the research question(s), conducting research using an appropriate design and methodology, analysing and interpreting the results and evaluating the contribution of the research with associated recommendations for future directions in the field. The difference lies in the format and impact of the research output (see Francis, Mills, Chapman & Birks, 2008).

Powell and Green (2007) acknowledge the importance of publishing during candidature in certain countries, particularly in Scandinavia. The publication pathway derives from Northern Europe (see Simpson, 1983) and remains the predominant method of achieving a PhD in that region. Many European countries have a form of PhD by Publication in their requirement of the mandatory publication of papers before thesis submission (Powell & Green, 2007) although the named degree is less common (Brien, 2008)

In the UK, this form of PhD was officially introduced at Cambridge University in 1966 (Simpson, 1983) yet there is evidence of earlier such awards to staff members in the UK (Davies & Wolfe, 2009)? In 1998 the UK Graduate Council of Education [UKCGE] found that although the majority of universities offer the publication pathway, candidates predominantly opted for the traditional method of completing a PhD by dissertation. Powell’s (2004) review of the publication of research outcomes in UK PhD candidates revealed a confusing mix of traditional PhD programs and ones permitting publications prior to candidature. In Northern America, Brien (2008) claims the PhD by Publication is rare although there are initiatives for awarding PhDs on the basis of prior publication. Achieving a PhD through papers published prior, as opposed to during, candidature is discussed in the following section.

Although Aitchison *et al.* (2010) acknowledge some educators are “deeply attached” to submission by dissertation (p. 26), they declare a “diminishing status of the traditional thesis in contemporary higher education”. Based on the limited literature on submissions and completions (Park, 2005), this statement appears to be premature. Although policies on PhDs by Publication are well established, completions by this method are still relatively minor in the UK (Powell, 2004). This review of Australian policy suggests increasing attention in PhDs by Publication among HDR students but relatively few completions, somewhat surprising given how aligned the HE environment is to the publication pathway.

Review of Australian Policy

The guidelines/policies for enrolling in and completing a PhD by Publication were requested by telephone and/or electronic mail from 39 Australian universities. Of the 39, three universities did not currently offer the publication pathway. Of these three, one had discontinued this method of completion, one stated the decision was currently under review and the remaining university had decided to offer a PhD by this pathway from the following

year. Of the 36 universities currently offering PhDs by Publication, two universities were in the process of developing policies and guidelines. The guidelines from the remaining 34 universities were reviewed in regard to the type of program on offer, the composition of the final submission and any specifications concerning the number, type and authorship of papers included in the thesis. Approximately half of the universities were followed up to clarify the precise meaning of certain points in the guidelines.

Types of PhD by Publication programs

Of the 34 universities, there were three distinct programs on offer. The first, termed 'PhD by Prior Publication', permits candidates to include academic work conducted prior to candidature. Nine of the 34 universities offer such a program and the general expectation is that candidates submit their thesis within three to twelve months of enrolling. Applicants are expected to provide, as a minimum, a synopsis of published papers and their curriculum vitae. Certain institutions request a critical review of the collated publications which summarises cohesiveness and overall contribution to knowledge; details of academic awards; evidence of peer review, citations and standing for each publication and the candidate's contribution to each publication in terms of initiation and direction. Some institutions also impose a restriction on the length of time elapsed between enrolment and the publication dates of included papers, ranging from three to ten years.

This pathway is particularly attractive for staff with an established research track record. In a review of UK doctoral programs the pathway's eligibility requirements were considered restrictive and an 'easy option' for a favoured minority (Wilson, 2002, p. 72). Although access to Australian programs does not appear to be an issue, this retrospective approach does not allow candidates to benefit from Faculty expertise while writing their thesis.

The second, termed 'PhD by Publication', is essentially a traditional PhD but the final submission is a series of published works, as opposed to the traditional dissertation. Twenty-three of the 34 universities offer this pathway. Enrolment and admission procedures are the same for those submitting by dissertation; for example, full-time enrolments range from three to four years and candidates are required to defend their research proposal within 12 months of candidature. Students wishing to pursue the publication pathway are expected to early into candidature and some institutions state this pathway is more suited to candidates who have published previously. Three of the 34 universities, included in the numbers above, offer both the PhD by Prior Publication and the PhD by Publication as two separate programs.

The final program, termed 'Hybrid PhD by Publication', is a combination of the two programs above and is offered by five of the 34 universities. It is essentially the 'PhD by Publication' program but allows papers published prior to candidature to be included in the final submission. Certain stipulations are applied by different institutions; two impose a maximum percentage of papers published prior to candidature, one 50% and the other 66%, and another states only the critical review component of the thesis must be produced during candidature.

Variations in program type urge potential candidates to consider their choices carefully. A wider understanding of the types of available programs may alleviate preconceptions that the publication route is only available to established researchers. It may also reduce the risk of academics confusing the publication pathway with the 'occasionally less-than-salubrious' honorary doctorate (Starrs, 2008).

Number and type of papers

Although it is acknowledged the publication pathway may be used by candidates submitting other forms of published works, such as media recordings, the focus here is on textual submissions. Across the 34 universities, there is considerable variation in guidelines on the types of publications considered acceptable for inclusion in the thesis. Avenues for publication are commonly defined as journal articles, book chapters, or ranked conference papers; the refereed or substantive review process considered standard for included published papers or those accepted for publication. Certain institutions request evidence of peer review, particularly papers published in conference proceedings. Several guidelines specify the thesis must not include work previously submitted for another award, by the candidate or another person. One university states published works cannot be where the candidate's role was that of editor. Some guidelines state journals must be recognised by the Higher Education Research Data Collection and/or Excellence in Research in Australia [ERA] initiatives. Interestingly only 20% of the university guidelines highlight the importance of considering the relative standard and quality of journals, emphasising that publishing in high impact journals is more important than the number of papers.

For 'PhD by Prior Publication' programs, all nine universities state included papers must be published or accepted for publication. Of the three different PhD programs, this type gives the least guidance on the number of included papers with no minimum number stated. One university stated the publications should be of a sufficient number to constitute an original and substantial contribution to knowledge.

There are no distinct differences between the two remaining program types in their stipulations on the number and type of papers. All the universities indicate that published, accepted and submitted papers may be included in the final thesis. Some, however, stipulate a certain proportion of papers which should be published, ranging from 33% to over 50%. In regards to whether the papers are conceptual, empirical or discussion; only one university limits the inclusion of literature review papers to one. Another university states there should be at least three or more significant data chapters worthy of publishing but otherwise there is little guidance on the combination of paper types. In regard to the actual number of included papers, the majority of universities do not stipulate a minimum. A small number give a general guide, ranging from two to four papers, although one university offering a 'hybrid' program states a minimum of six papers.

Many of the guidelines acknowledge there may be additional conditions imposed by specific faculties. For example, one particular faculty states published papers must be in A or A* ERA ranked journals. Candidates should pay attention to what constitutes a quality publication within their Faculty, particularly in light of changes in the ERA platform.

Co-authorship

Universities agree that co-authored papers can be included in the submission yet candidates are expected to have made a significant contribution and should ideally be the principal author. If candidates are not the principal author, they are expected to outline their precise contribution. One university stipulates the candidate must be the principal author of all co-authored papers, others state the majority with specific guidelines of 50% to 66%. A small proportion of universities expect the candidate to be sole author of a significant number of publications. Co-authorship among academics varies by discipline (Kamler, 2008) and

candidates should be familiar with expectations and practice. Networking opportunities within their field and Faculty may impact on a candidate's ability to satisfy policy guidelines.

Nature of final submission

Policies on the format of the thesis vary significantly between institutions, some producing lengthy guidelines on content and others offering only a couple of paragraphs to candidates. There do not appear to be distinct differences pertaining to program type. The overarching theme is that the submission, similar to a thesis by dissertation, demonstrates a coherent body of work which makes a significant contribution to knowledge in the field. Guidelines in Australian universities incorporate measures for quality assurance. There is considerable emphasis on the thesis comprising more than the sum of a collection of papers and a substantial critical review which ensures the submission of a cohesive and significant body of work.

The papers must be relevant and contribute to the argument of the thesis. They should be presented sequentially in their presentation of research findings and contextualised by a critical review, also referred to as an integrating essay or exegesis, which explains the contemporary relevance of the publications individually and as a whole. Bradley (2009) argues the review should be publishable in itself. This is reflected in the guidelines which broadly recommend including an introduction which frames the submission; a literature review; a summary of the included papers; an outline of methodological procedures and a conclusion which synthesises the major research findings, their contribution and future research directions. Guidelines also specify a statement of the candidate's contribution to each paper and co-author permission for their inclusion.

In alignment with recommendations (Bradley, 2009; Francis *et al.*, 2008), a small number of universities require candidates to critically evaluate their study and articulate how it might be improved. The absence of this component from several guidelines is problematic, particularly for UK examiners where defending one's study and discussing alternative approaches is typically addressed in the 'viva' process (Jackson & Tinkler, 2001).

There does appear to be broad agreement on the purpose and importance of the critical review and the more detailed guidelines indicate a degree of homogeneity regarding its components. Several policies, however, lack the information required to guide candidates in the vital process of writing a critical review, risking an incomplete submission which may trigger deflated examiner scores and a call for unnecessary revisions.

A review of PhDs by Publication in the UK (UKCGE, 1998) indicated considerable variation in university submission requirements and the need for a more uniform approach; confirmed by Draper's (2008) more recent review. This appraisal of Australian practices reveals a similar lack of consistency among universities with substantial disparity in guidelines' length and completeness. A significant proportion of the institutions give inadequate guidance on the number and type of publications to be included, co-authorship, the critical review and the final submission.

Evaluating the PhD by Publication

Associated problems

Problems associated with PhDs by Publication are well documented (see Wilson, 2002). Francis *et al.*, (2008) argue it is more difficult to ascertain the candidate's precise contribution to the overall submission, although increasingly addressed by requisite statements from the candidate and respective co-authors. Criticisms are often less about the published works, as these have been subject to peer review, and directed more at the thesis appearing disjointed and repetitive. Further, there are concerns for candidate eligibility, quality of supervision and the assessment procedures of the award (Bradley, 2009).

Supervisory support is considered vital in successfully achieving a PhD by Publication, a "lack of experience ... can result in poor direction and result in lack of rigor and clear policy guidelines" (Francis *et al.*, 2008, p. 100). The crux is co-authorship which Kamler (2008) describes as "a significant pedagogic practice that can enhance the robustness and know-how of emergent scholars as well as their publication output" (p. 283). Robins and Kanowski (2008) warn of the potential for supervisors to capitalise on co-authorship and the need to agree on an ethical and compliant approach from the outset. Kamler (2008) perceives co-authorship as a pedagogical strategy for guiding doctorates through the process of managing rejection, revision and resubmissions but must be transparent with a clear statement of candidate contribution, considered significant by examiners (Wilson, 2002). Robins and Kanowski acknowledge supervisory workload may increase through continually reviewing papers yet is dispersed throughout candidature rather than the tail-end concentration associated with dissertations. In addition to increasing publication rates, co-authorship nurtures collaboration among colleagues, a key strategy for enhancing publication output. Despite the advantages, Lee and Kamler (2008) claim there exists "ambivalence and some resistance among doctoral supervisors" regarding publishing during candidature.

Regarding assessment, Robins and Kanowski (2008) suggest attracting examiners is easier and the examination process is likely to be quicker with less major revisions. Davies and Rolfe (2009), however, outline potential ambiguities in the examination process, highlighting the importance of providing examiners, who may be unfamiliar with submissions by publication, with clear guidelines on assessment. Powell (2004) argues appraising the individual merits of each publication, their congruence and their contribution to the whole thesis and current knowledge, and the quality of writing and candidate's contribution may be problematic. Certain guidelines indicate that publication is not a guarantee against requests for amendment or that the submission will be passed.

There are also problems inherent to publishing which make completing this pathway more problematic than the dissertation format. Publishing is considered the submission and acceptance of works in a peer-reviewed outlet. The process of peer-review has come under considerable scrutiny in recent years amidst concerns for validity, reliability and fairness (Ware & Monkman, 2008). Lengthy delays in peer-reviewing and publishing timeframes can delay candidature although this may be accommodated by allowing submitted papers in the thesis. The pressures of publishing have seen increasing evidence of academic misconduct (Brien, 2008) and systems for determining the quality of journals are considered by many as inherently flawed (Hare, 2011).

Difficulties in publishing are heightened for doctoral students lacking confidence and poor publication output may be attributed to a lack of mentoring and guidance on the fundamentals of writing and the publication process (see Kamler, 2008). Output tends to vary by discipline, the sciences far higher than social sciences (Lee & Kamler, 2008). Paré (2010) discusses publication-related anxiety among doctoral students and the dangers of publishing prematurely instead of capitalising on later, more significant publication opportunities.

Robins and Kanowski (2008) argue the PhD by Publication does not allow for directional change in theme or stance yet Davies and Rolfe (2009) maintain its sequential and developmental nature allows it to adapt and respond to changes in interests and the environment as it progresses. Submitting a collection of papers also facilitates the development of areas supplementary to the core study yet this is also possible with the dissertation.

The publication pathway has been criticised as tempting candidates to ‘salami slice’ data sets into smaller pieces, considered inappropriate, particularly in qualitative (Webb, 2008) and/or longitudinal studies (Robins & Kanowski, 2008). Francis *et al.* (2008) argue that generating a collection of papers which review literature, method, analyse and discuss empirical papers and one which conceptualises and applies major findings should not necessitate the division of data sets.

Lee (2010) claims the publication pathway requires considerable pedagogical and environmental infrastructure and, if not provided, fosters an “unskilled, ad hoc, unplanned and information-poor” experience for doctoral students (p. 27). Success in publishing is directly linked to institutional support (Kamler, 2008), some key examples being access to writing groups, statistical consulting and mentoring schemes. Although important these may be considered supplementary depending on personal capabilities in statistical analysis, writing abilities and, most importantly, the quality of supervisory support in these areas.

Other cited problems are intellectual property issues (see Robins & Kanowski, 2008) and the focus of the PhD becoming economic value and not the production of value-adding knowledge, ultimately de-valuing the process and award (Brien, 2008). Finally, Lee (2010) acknowledges that participants in the UK review of PhDs by Publication (UKCGE, 1998) expressed concern that short pieces of writing will not produce the same deep engagement with a topic as a dissertation.

Associated benefits

One must not forget the overarching value of publishing as a means of disseminating new research which contributes to the global knowledge economy and drives critical innovation. Although both pathways confirm the candidate’s ability to conduct research independently, PhD by Publication develops and demonstrates skills in publishing journal articles, now considered essential for a career in academia (Kamler, 2008). It allows existing academics to concurrently address work requirements, including publishing expectations, and progress with HDR commitments. In a study of American doctoral students, successfully publishing results from PhD studies enhances future scholarly activity (Green, Hutchison & Sra, 2001) and increases the chances of success in post-doctoral and competitive grant applications (Francis *et al.*, 2008).

The move towards the PhD by Publication aligns with HE's focus on graduate capabilities (Lee, 2010); the ability to conduct research independently, demonstrated through publication, considered essential in doctorates. As Lee argues, the PhD by Publication is evidence of the doctoral candidate's "capacity to articulate the outcomes of his or her research in public form, legitimized by the mechanisms of peer review" (p. 16). Hoddell, Street and Wildblood (2002) consider the development of transferable skills as a major challenge for traditional PhDs and those achieved through publication; recognising that doctorates incorporating coursework components more easily address skills such as working effectively with others, communication, self-awareness and self-management. Pedagogical strategies for improving doctoral publication output, such as peer review writing groups (Lee & Kamler, 2008), nurture reflection, communication and collaboration skills far beyond the isolating process of the traditional dissertation. Brien argues compiling the book-length thesis is considered a transferable skill in itself and although assembling a series of papers and their accompanying critical review may be just as difficult, it may not hold the same value.

Publishing during candidature may reduce attrition rates (Francis *et al.*, 2008), estimated at 50% in Australia, USA and Canada (Halse, 2007), as low as 12% in South Africa and 70% in the Netherlands (Powell & Green, 2007). The pathway also overcomes the difficulties of publishing PhD findings following graduation where supervisors may prioritise enrolled students and are unavailable for slicing and writing up theses into quality publications (Robins & Kanowski, 2008). Timmons and Park (2008) argue PhD candidates may not publish their findings due to saturation, lack of confidence, lack of skills in writing for publication and time constraints. Inadequate dissemination of research findings may significantly impact current thinking and compromises continual effort to enhance the global knowledge economy.

The pathway also facilitates the timely dissemination of new knowledge which may, in certain fields, date – and therefore devalue - quickly. The publishing process encourages scholarly activity including referencing, responding to editors and reviewers, presenting data and explaining methodology, early on in the candidature (Robins & Kanowski, 2008). It also facilitates timely and regular critical review of doctoral candidate's work, not only improving outcomes but fostering certain attributes and skills, such as perseverance, acceptance of critical comment, communication and meta-cognition, all essential in academia.

The PhD by Publication offers possibilities for collegial collaboration which may reduce the isolation associated with the dissertation format (Courtney, Galvin, Patterson & Shortridge-Baggett, 2005). Certain guidelines indicate setting publication deadlines may assist with achieving thesis milestones and might ultimately produce a more focused and concise thesis. It also allows the somewhat overwhelming prospect of reviewing large bodies of literature in a framework of partitioned and more manageable components (Robins & Kanowski, 2008).

Personal experience

My own experience supports evidence that candidates achieving PhDs by Publication are certain of the value of the pathway (Lee, 2010) and substantiates many of the outlined benefits and concerns. Appropriate supervision was vital; my own skilfully and efficiently navigating me through the publication process, concurrently nurturing a degree of independence, knowledge and, subsequently, confidence in my approach to publishing. Co-authorship was initially an awkward process yet benefited both parties from the experience and generated publications.

It is also true that one experiences considerable publication-related anxiety from lengthy review processes, aggravated further by rejections and requests for major revisions. Particularly important is including at least one empirical paper published in a high quality academic journal, seemingly considered an unwritten prerequisite. My personal strategy was to convert my literature review into a number of papers in the early stages of candidature and publish each in journals which demonstrated relatively short turnaround times. The timely feedback was invaluable and disseminating my work not only increased personal confidence but also facilitated successful applications for additional research funding. Delays in reviewing my empirical papers did occur yet one acceptance in a high ranking journal was considered sufficient and allowances for including submitting papers eliminated any impact on my candidature.

Davies and Rolfe (2009) argue the ‘multiple project format’ of the PhD by Publication allows for a closer relationship with practice than is often possible with the dissertation format. My own thesis included two papers which discussed, conceptualised and applied the study’s major findings in a practical context, namely a university setting. These certainly combined to accelerate the contribution and significance of my work beyond the boundaries of the traditional dissertation.

There were, however, opportunity costs associated with the publication pathway. It virtually eliminated time and opportunity to network with colleagues at faculty events and/or conferences due to favouring articles in journals over ranked conference papers. In addition, supervisor preferences for high ranking journals – to align with existing personal and faculty performance data – was restricting, particularly for discussion, conceptual and review papers. It did, however, conform to current thinking that fewer papers in high quality journals is more preferable than multiple papers in lower ranked journals and, in the long run, may positively impact on career aspirations. A certain personality is required for this pathway; excellent time management skills, strong writing capabilities, an understanding of current literature or a willingness and ability to grasp this in the initial months of candidature and perseverance.

The importance of the critical review was confirmed in the examination process; it being treated as an independent manuscript with recommended revisions to strengthen its focus and impact. Adding weight to this paper, insufficient information on certain aspects of the critical review, more specifically discussing personal learning and the limitations of the study, proved problematic for my thesis and was cited as an area of revision by both UK-based examiners.

Conclusions

There are three distinct programs for completing a PhD by Publication in Australian universities: those designed to award candidates retrospectively of their research achievements, those differing from the traditional PhD program only in that the final submission may comprise a series of papers, rather than a dissertation, written during candidature; and a combination of the two which permits the inclusion of papers both prior to and during candidature.

There are significant benefits in completing a PhD by Publication. For existing academics, it provides a pathway for achieving a PhD which may scaffold from publications generated through required workload, rather than creating a dissertation which may simply add to it. The pathway will assist staff in developing an established research profile, critical in a work

environment which places considerable value on individual research data and is experiencing reduced job security (Blexley, James & Arkoudis, 2011). For HDR students, evidence of the ability to publish enhances their chances of securing an academic position – calming concerns for PhD graduate employability (Peters, 2007). For Faculty, the pathway may reduce attrition; encourage more timely completions and increase publication output, all combining to enhance research performance.

Informal discussions during this review of policy in Australian universities suggest increasing student and supervisor interest in the PhD by Publication. Unfortunately, Australia is not yet in a position to capitalise on the potential benefits of the publication pathway as universities, as a whole, are yet to develop guidelines which clearly outline the required outcomes. The review indicates insufficient guidance on the quantity and quality of required publications and how the entire body of work should be integrated and evaluated to ensure the thesis is of comparable utility and quality to the conventional dissertation. This lack of articulation on the required end-product is also a problem in the UK (Draper, 2008; Powell, 2004). Draper states “there is not only no consensus on length, there is no real agreement on purpose or format” in UK university guidelines, leaving candidates “at the mercy of divergent interpretations by examiners and supervisors”.

Comprehensiveness guidelines are of paramount importance. Gaps in and/or nebulous guideline content may result in delayed submissions which are costly to the individual, through losses in potential earnings; funding bodies, as students may seek additional scholarship assistance, and Faculties seeking timely for their research performance data. Candidates may submit theses which lack elements preconceived by examiners as standard for this thesis format, biasing perceptions of candidate ability and, ultimately, classification outcomes. There are also administrative and workload costs associated with thesis revisions due to incomplete submissions.

Complete and nationally consistent guidelines will raise the profile of the pathway; answer questions on candidate and supervisor suitability; facilitate informed approaches in currently unfamiliar territory, and overcome lingering mystery surrounding value and rigour, augmenting broad acceptance in both academic and industry communities. A collaborative and systematic revision of guidelines among Australian universities, using best-practice examples from experienced universities, is vital.

Those PhD candidates who are interested in the publication pathway should clarify which program is offered at universities of interest and consider a number of factors when assessing program suitability. First, the comprehensiveness of university and faculty guidelines should be evaluated. Second, infrastructure supporting the publication process should be reviewed, particularly the availability of writing groups, mentoring schemes and statistical consulting support. The role of supervisors is considered vital when completing a PhD by Publication. Candidates should ascertain from prospective supervisors their stance on and experience of this pathway prior to enrolment. Prospective supervisors should seek guidance through international literature on scholarly practice and pedagogies for completing a PhD by Publication; Aitchison *et al.* (2010) provides an excellent base to ground oneself in alternative approaches and strategies.

The suitability of the pathway may also differ by discipline area. Dwyer (2008) advises that potential PhD candidates consider the importance of publishing to their career prospects and employability in their chosen field. For some, disseminating work at a conference or writing

for a professional journal may be preferable to publishing in peer-reviewed academic journals, although internal funding/rewards may not reflect this. The type of research project is also important; qualitative and longitudinal studies considered less suited to the timely publication prompted by this pathway. Also, certain data may benefit more from early dissemination than others, even with the associated risks of premature publication. Finally, candidates should reflect on their ability to manage stress prior to embarking on this pathway as the pressures of publishing, aggravated by candidature timelines, are considerable.

Calls for improved individual and institutional research performance are not specific to Australia, highlighting the importance of the PhD by Publication to HE worldwide. It is hoped this review may inform other countries experiencing similar economic and sector pressures to consider the PhD by Publication pathway and embrace the development of complete guidelines for relevant stakeholders. Future studies on employer, academic and potential student perspectives of the value and credibility of the publication pathway may also assist with refining new programs, ensuring the availability of required institutional resources, and targeting suitable applicants.

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