Title: Alternative Format Doctorate: an exploration of the role of PhD by publication in developing research skills to advance practice

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Abstract

Healthcare professionals can achieve key benefits by engaging in research in clinical settings. Advance practitioners, nurses and other allied health care professionals can be effective facilitators between researchers, patients and other clinical staff in healthcare research projects. Although advance practice roles require engagement with research activities, it is difficult to do so in the current financial climate. One way of developing the research skills to lead research projects is to pursue a PhD. There are different PhD research training routes. Alternative format PhD by publication, as a form of research training for advance practitioners, can produce tangible benefits for practice development. Challenges include a lack of definition and guidelines, and the time required to generate acceptable publications. Benefits include a higher rate of publication of valuable new knowledge and career development. Alternative format thesis by publication maybe a useful tool for advance practitioners to conduct PhD level research training.

Keywords:

advanced practice alternative format thesis doctoral thesis research thesis publication

Key points:

- Developing research skills and leading research to develop practice is a core part of the role of an advanced practitioner.
- While undertaking a PhD is a useful form of research training, there can be confusion about the different formats.
- An alternative format thesis offers an opportunity to publish aspects of the PhD study as it progresses. This facilitates early dissemination of learning and knowledge generation.
- Clearer guidance and policies around alternative format PhD by publication in higher education institutions may make this PhD format more effective at improving clinical practice.

CPD questions

- What are the potential benefits of a PhD by publication programme for researching issues in practice my area of work in an advanced practice role?
- Based on the limitations identified in the article regarding opportunities for leading research for advanced practitioners, how can I advocate for more research-friendly practices within my healthcare organisation?
- After reading this article, how can I identify if my current research activities could be part of a PhD by Publication programme?
- If I am interested in learning more about PhD by Publication programmes, what resources should I explore further?
- The article mentions the research pillar of advanced practice. How can I develop my research skills further to contribute to this area, even without pursuing a PhD?

Main copy

The insightful discussion by Dean (2023) about the research pillar of advanced practice, highlights the benefits to practice that healthcare professionals can achieve by engaging in research within clinical settings. The translation of research findings into clinical practice requires expertise in both knowledge generation and implementation, along with a solid understanding of change theory, dissemination strategies and methods for integrating new approaches into practice (Johnson and Stellwag, 2022). They highlight the constructive role that advanced practitioners can play in facilitating the implementation of science because of their extensive interaction with patients, families, other healthcare professionals and the administrative staff. The development of nurses and other allied health professionals to positions where they can lead research is dependent on building multidisciplinary collaborations to gain research mentorship (Farquharson, 2024). This article discussed the scope of an alternative format thesis or PhD by publication as a form of research training, which can provide tangible benefits to provide healthcare professionals and advanced practitioners.

The research pillar of advanced practice

Research, including its creation, understanding, and dissemination, is identified as the fourth fundamental pillar of the advanced practitioner role in the UK. (Health Education England, 2017). Advanced practitioners often lack opportunities and resources to engage in research or research training (Dolman, 2023; Farquharson, 2024). This is an international issue possibly because nurses view research as a practice-based discipline (Ryder, 2022). The Institute of Medicine's 2010 report emphasised the need for stronger and better nurse-led research, highlighting the gap created by the insufficient number of doctorate-prepared nurses to lead in this area of practice (Broome, 2018). The absence of clear clinical career pathways for PhD-prepared nurses in many countries limits the number of professionals capable of conducting research in senior roles (Ryder, 2022). While there are signs of change in several countries (McKenna et al, 2014; Molassiotis et al, 2020; Broome et al, 2023), the pathways lack visibility and mentorship.

A nationwide survey of advance clinical practitioners in England and other stakeholders, such as NHS employers, found that only 11% of advanced practitioners viewed themselves as being involved in research, with few employers considering it a priority (Fothergill et al, 2022). While advanced practice activity in the pillars of clinical care, leadership and education has undergone rapid development, work supporting development in research has been slower (Bell and Colleran, 2019; Whitehouse et al, 2022). Undertaking a PhD is one way to increase research knowledge and skills, even though it is considered a daunting task by many advanced practitioners (Merga et al, 2020). A significant amount of the knowledge developed during the process does not end up getting published. This article explores the role of a PhD obtained through the alternative format of thesis by publication and its benefits for practitioners who wish to advance their practice by disseminating research in their clinical areas of expertise.

Research training: PhDs

The primary purpose of a PhD is to provide research training in the conduct of original and independent research. This apprenticeship model aims to equip post-doctoral researchers to contribute their knowledge to science and to develop the existing knowledge and skills to lead in future research. The numbers of people doing doctoral degrees in applied disciplines, such as nursing, are increasing in many countries around the world (Broome and Fairman, 2018; Graves et al, 2018; Dean, 2019; Molassiotis et al, 2020; Swank et al, 2021; Johnson and Stellwag, 2022). Most of these are undertaken part time, alongside clinical and educational roles as practitioners working in applied disciplines. As a consequence, healthcare professionals tend to undertake PhD training later in their career trajectories than would be expected in other academic disciplines (Spronken-Smith, 2018).

There are real challenges to research in the current financial climate, when there is limited funding to enable practitioners to complete their PhDs on a fulltime basis (Dean, 2023). The publication of the Institute of Medicine's report highlighting a lack of

research opportunities in nursing led to an increase in funding and a sharp increase in the numbers of PhD-qualified nurses. However, much of the growth has been for those completing professional doctorates (Doctor of Nursing Practice), with less than 15% undertaking a full research doctorate (Broome and Fairman, 2018). The different types of doctorates are outlined in *Table 1*.

Problems with postgraduate research courses include poor completion rates in doctoral programmes and failure to effectively disseminate the knowledge generated (Mason, 2018). This low rate of publication has been a longstanding problem (Tronsgard, 1963), with students undertaking traditional PhDs in many applied health disciplines struggling to publish their findings, with fewer than 25% successfully doing so (Thomas et al, 2016; Evans et al., 2018; Johnson and Stellwag, 2022). The lack of publication among health professionals pursuing PhD studies worldwide poses several significant problems. It represents a missed opportunity to contribute valuable insights to improve clinical practice. Moreover, the funding invested in these PhD studies may not yield the expected returns, potentially discouraging future funding efforts. Participants who contribute to these studies in the hope of influencing practice may feel disillusioned if their efforts do not result in tangible outcomes. Furthermore, the failure to publish means that individuals miss the opportunity to establish themselves as leaders in their area of expertise (Frick, 2019). The absence of published research may lead to duplication of efforts, since others may unknowingly begin work on similar studies without access to existing findings. One potential way to improve doctoral programmes is to develop different research pathways that incorporate publication and a wider range of dissemination techniques (Smaldone et al, 2019) (Table 1).

Table 1

Туре	Alternative	Description
	names	
Traditional	Monograph	Involves conducting an empirical research study
format	thesis	which may have several different parts. The final
		thesis is a multichapter monograph, detailing a
		research study that has generated unique knowledge
		(Harvey and Howard-Hunt, 2021).
		Includes chapters on introduction/background,
		literature review, methods, results, discussion and
		conclusion. This format is common across the world.
Taught	Professional	A taught empirical doctoral course typically includes
empirical	doctorate and	a 2- to 3-year taught component, where students
research	practice-based	undertake a series of assessed postgraduate-level
PhD	doctorates in the	modules in research methods and discipline-specific
	UK	training focused on a particular area of research
		interest. These modules contribute to the overall PhD
		outcome (Smith and Wynne, 2015). The work

		completed in these modules usually builds toward a final empirical research study, which is written up as a shorter self-authored monograph (ranging from 30 000 to 50 000 words) compared to a traditional format PhD. Some institutions allow the incorporation of multi-authored publications as part of the final submission.
Professional doctorate	Doctorate in Nursing Practice; Doctorate in Education; Doctorate in Pharmacy, etc	This form of doctorate has become popular in the US and is increasingly available in other countries. It is primarily a taught course where students develop indepth knowledge of their discipline and research methodologies. This type of doctorate often involves assessing knowledge through assignments or exams throughout the course. It may not include a significant empirical research project, as some focus on the application of research to develop practice guidelines or conduct quality improvement studies (Dobrowolska et al, 2021).
Alternate	Thesis with	A thesis document that details one major research
format thesis; thesis by publication	publications; manuscript dissertation formats; publication ready manuscript; publication format article- based thesis	study generating unique knowledge typically includes chapters such as an introduction, literature review, methodology, findings and discussion, with some of these sections presented as published or publishable papers. The thesis concludes with a final integrative discussion chapter. The included papers may be coauthored by other individuals involved in the research project, usually the PhD supervisors (Merga et al, 2020; Robinson, 2023; Solli and Nygaard, 2023).
Thesis by published	PhD of published	A doctoral thesis that comprises previously published
work	works	works with a common thread, but not necessarily centred around a single empirical study. This format is typically available only to individuals with a significant career and publishing history who have not undertaken a formal PhD programme. It is more popular in the UK than in other countries (Peacock, 2017).

Types of PhDs

The various types of available PhDs can be confusing. The most common type is the traditional manuscript-style PhD. However, often research done on this route by healthcare practitioners such as nurses is underused because of a lack of post-PhD

publications. The alternative format thesis-by-publication route results in higher levels of publication and has a potentially higher impact.

Generally, PhD students are expected to design, develop and execute a research study that generates original knowledge. They must then write up the process and findings in a dissertation or thesis, which typically consists of several chapters. Historically, this has been presented as one piece of work, or monograph, of between 60 000 to 100 000 words. In this article, this monograph style of PhD presentation will be referred to as a traditional format PhD. The layout and content of the chapters are specified by the student's institution. The similarity of structure within disciplines facilitates smoother examination by academics from other institutions. External marking is a cornerstone of PhD examination. In some countries, PhD candidates are also expected to present an oral defence of their thesis to their examiners, and in some cases, to interested members of the public as well.

Table 1. Types of PhD thesis

Alternative format Thesis-by-publication

Efforts to increase publication rates among PhD students have led to a final thesis structure that includes published or publishable works directly related to the empirical PhD study (Morton, 2015; Thomas, 2016; Evans, 2018; Solli and Nygaard, 2023). The purpose of this is twofold: to increase the dissemination of PhD research and to develop students' skills and confidence in writing for a wider audience, which will be an important component of their future research careers. The alternative format PhD by publication route has developed in different ways across various countries (Peacock, 2017; Nygaard, 2020; Paltridge and Starfield, 2023).

An essential characteristic of an alternative format thesis by publication is that it comprises several standalone texts, which may be published before the thesis submission or in a publishable form (Solli and Nygaard, 2023). While the thesis by publication format has been established for some time, it has only recently gained popularity as a submission pathway. Although it is a prevalent form of PhD thesis submission in Scandinavia, it is less common in other countries (Nygaard and Solli, 2020).

Across international institutions of higher education, a wide variety of terms are used to describe alternative format PhDs. These include: thesis with publications (Mason, 2018); thesis by publications (Merga et al, 2020); manuscript dissertation formats (Graves et al, 2018); publication-ready manuscript (Solli and Nygaard, 2023); publication format (Smaldone et al, 2019): article-based thesis (Lewis et al, 2021) and alternative format (Robinson, 2023).

Structure of an alternative format thesis by publication

There is some variation in the structure of the thesis by publication, and institutions offering this pathway provide limited guidance (Lee et al, 2013; Robinson, 2023). However, a consistent requirement is that the thesis should contain publishable or

published articles, although the number required varies depending on the institution and discipline (Graves et al, 2018; Swank et al, 2021). Where guidelines specify a number, the most common expectation is three manuscripts (Thomas et al, 2016; Robinson, 2023). These can be sole-authored or co-authored, with the expectation that the student is the first author. Generally, the final thesis will consist of five or six chapters in addition to the articles. Typically, the first chapter is an introduction to the research area, similar to a traditional PhD. This chapter includes elements such as the problem statement, the purpose and significance of the research, the research questions and the positioning of the issues within contemporary literature and policy.

The second chapter is typically a literature review, which is often the first published paper. The next chapter may outline the theoretical perspective or framework (Broome, 2018). Subsequent chapters can include a mix of traditional narrative chapters and published papers, focusing on aspects of the methodology or the publication of results. In some cases, the final chapter presents the entire study as a published paper (Swank et al, 2021). However, in most cases, the final chapter, often referred to as the integrated discussion, provides a comprehensive synthesis of the individual published works. It offers a cohesive analysis and interpretation of the research findings, the student's reflections on the learning process and the potential implications of these findings (Merga et al, 2020; Lewis et al, 2021; Swank et al, 2021).

The process of completing an alternative format thesis by publication

While PhD journeys are always unique, Lee (2010) identified eight pedagogical steps. There are three additional stages before the PhD process is complete (*Table 2*).

Table 2. Steps in undertaking a alternative format PhD.

	(the number of examiners is set by the university)
10	The thesis is analysed by examiners who are not familiar with the thesis
	published papers and final integrative chapter
9	Completing the final presentation of the thesis with an introduction,
8	Resubmitting the articles
7	Responding to reviewers' comments with input from the co-authors
6	Presenting the work to colleagues or at a conference
	submission to journals
	sections of the PHD study. Allowing time for review by co-authors before
5	Drafting articles collaboratively with supervisors while completing
	publication
4	Seeking out the scope and author guidelines of journals targeted for
3	Analysing or synthesising data to achieve publishable results
	through each published work
2	Making clear the theoretical and conceptual learning accomplished
1	Designing the research with separate publishable elements

Generally, an oral defence of the thesis is held, where examiners meet with the student after the marking process to discuss various aspects of the study. This provides an opportunity to clarify any questions and assess the student's understanding and ownership of the thesis content. In some countries, members of the public are invited to attend the PhD defence.

Advantages of alternative format thesis by publication

Breaking the project into smaller, potentially publishable pieces increases the appeal for the students and facilitates incremental contributions to the field's knowledge base. Each publication, even before the final thesis is completed, contributes to augmenting existing knowledge. Completing each paper imparts a sense of achievement and boosts motivation to continue the research journey. Publishing throughout the course of the PhD study amplifies the benefits of disseminating newly generated knowledge, thereby enhancing career prospects for the PhD scholar upon completion. This approach aligns with the objectives of funders, universities and supervisors, as it maximises the impact and visibility of the research outcomes (Thomas et al, 2016).

When choosing an institution and supervisor, potential students must have a clear understanding of the different thesis types available. If considering an alternative format thesis by publication, it is crucial to have early discussions with supervisors to clarify the process and establish criteria for issues such as article authorship and their involvement throughout the doctoral journey (Lee et al., 2013; Mason et al., 2021).

In the unfortunate scenarios where candidates do not complete their PhDs, some of the outputs of their work can still be made available in the public domain, which benefits the practitioner and the wider field of healthcare.

Limitations of alternative format thesis by publication

Producing material suitable for publication and navigating the external peer review process can be challenging for PhD scholars. While much of the evidence about this experience comes from individual blogs and social media, a common theme is the difficulty and time involved in the publication process. The rise in open-access publications offers increased access to research, but publishing in these journals can be costly, particularly for self-funding students. However, some universities may have funding arrangements to cover article processing fees. Articles that are not open access remain the property of the publishing journal. Permission may be required to include these articles in a thesis by publication manuscript, and agreements must be made regarding hosting the manuscript on free-to-view platforms.

Publishing with supervisors can also raise the stakes in the supervisory relationship, especially when the publication is part of the thesis submission (Pretorius, 2017; Mason,

2018; Merga et al, 2020; Robinson, 2023). Risks also exist for both the student and supervisor if they are unable to collaborate effectively to produce successful publications (Pretorius, 2017; Molassiotis et al, 2020). This has been identified as a problem in disciplines such as nursing in some institutions, which have low numbers of PhD staff relative to scholars and a limited culture of publication (Graves et al, 2018; Broome et al, 2023).

Some students feel compelled to pursue specific topics, or submit their work to prestigious journals, which may not align with their research interests or career goals (Frick, 2019). This pressure can lead to demoralisation, especially when submissions face repeated rejections, ultimately prolonging the time to completion. While there are some publications on the experiences of article rejections, additional accounts from scholars who have faced setbacks could offer valuable insights. Implementing alternative format theses by publication in academic settings can present additional challenges. Supervisors may also face pressures, such as meeting publication targets or advancing the reputation of their research group. This dynamic can sometimes inadvertently contribute to students feeling compelled to conform to certain expectations, potentially hindering their academic progress and personal fulfilment (Mason 2018; Frick, 2019).

Challenges also arise from lack of clarity and the evolving criteria associated with this format. The criteria for assessing and evaluating an alternative format thesis can be unclear and brief, posing challenges for examiners and supervisors who are accustomed to traditional PhD formats. Supervisors may have contrasting opinions regarding the requirements and expectations, leading to inconsistencies in the guidance provided to students and, consequently, potential confusion. Additionally, concerns may arise regarding the quality and impact of publications included in the thesis, especially if they are published in journals of varying prestige or rigour. Examiners may encounter difficulties in evaluating the coherence, integration and contribution of individual publications to the overall thesis. This is especially true if the publications cover disparate topics or lack a clear overarching narrative. Stronger and clearer guidance is needed for the prospective and current PhD students, supervisors, and external examiners (Mason et al, 2021).

Another concern relates to the recognition and nomination of these theses for awards or prizes. Institutions may overlook or fail to nominate PhDs consisting of published articles for awards, potentially diminishing the recognition and acknowledgment of the scholarly contributions made through this format.

Key points for candidates considering the alternative format route to PhD

• Research university policy: confirm which UK universities offer PhD by publication programmes and carefully review their specific guidelines. These guidelines

typically outline publication requirements, the connecting overview format and the assessment process

- Supervisor selection: seek a supervisor with experience in the PhD by Publication format. Their expertise can be invaluable in guiding the publication strategy, developing the connecting overview and navigating potential roadblocks
- Time management: be mindful of the extended timeframe associated with publishing articles. Factor in peer review times and potential revisions when constructing PhD timeline to ensure a realistic and manageable schedule
- Publication strategy: develop a well-defined publication strategy early on. This strategy should consider the scope, quality and impact of chosen publications to ensure that they meet the standards of the field and the university's requirements.

For higher education institutions

- Continuous feedback: actively seek regular feedback from the supervisor, peers and other experts in the field. This feedback will be crucial in ensuring the quality and relevance of the publication and the connecting overview
- Maintain balance: throughout the PhD by publication process, it is important to maintain a healthy balance between the research activities and other commitments. This will help to prevent burnout and ensure sustainable progress towards the degree.

Recommendations for institutions, supervisors and examiners considering the alternative format route to PhD

- Recognition of this route in a wider range of healthcare and higher education institutions may offer more efficient publication and dissemination into clinical practice of research findings. It may also provide career development opportunities for clinicians, both as students and faculty (Robinson, 2023)
- Clearer guidelines for students, supervisors, and examiners, while retaining some flexibility in approach, are needed. Some institutions offer suggestions on how to conduct a viva when: significant parts of the work being examined are co-written, have already been peer-reviewed, published, and potentially debated in subsequent publications. Ensure the availability of examples and guidance materials in university libraries to make the process more transparent and accessible for supervisors and students.

Universities and funders may need to allocate additional resources to support students in navigating the publication process. This investment could lead to more effective clinical protocols and care, as well as improved university research rankings.

Conclusions

An alternative format thesis by publication plays a key role in enhancing opportunities for engagement in research for advanced practitioners. It allows for the publication of

research elements as the PhD progresses, leading to quicker implementation of knowledge and career-enhancing publications. Addressing the challenges related to guidance will be crucial for the successful implementation and evaluation of alternative-format theses by publication in academic settings. The integral requirement to develop publications facilitates the dissemination of new knowledge generated through PhD-level study in healthcare. As a route of PhD-level study, it is well-suited to help advanced practitioners become successful, productive researchers in healthcare.

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