
Getting a PhD

An action plan to help manage
your research, your supervisor
and your project

John A. Finn

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Getting a PhD

Compared to their previous experiences, new PhD students face very different challenges and responsibilities, require different skills and must achieve higher standards of performance. Where do research students get such information?

This book provides guidance that will help research students avoid needless mistakes and address the demands of their PhD research project with confidence. It informs and advises research students on many of the important facets of postgraduate research, including:

- explaining what it means to conduct research at doctoral level;
- the doctoral requirements for independence, contribution to knowledge, originality and suitability for publication;
- getting the most from your supervisor;
- planning a research project;
- conducting a literature review;
- writing the thesis;
- publishing your research;
- criteria used in the PhD examination.

Each chapter contains reference to selected reading and online resources, and there are numerous exercises that encourage you to consider how the content applies to your research project.

Getting a PhD is an essential handbook for PhD students, and will provide plenty of valuable advice for Master's students or undergraduates conducting a research project.

John A. Finn is Research Officer at Teagasc, Ireland, where he manages research projects and supervises PhD students. He is also Visiting Researcher at University College Dublin.

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To my parents, for the educational opportunities
that they gave me, and to Linda, Gearóid and Aisling

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John Finn
July 2004

Introduction

The aim of this book

In many cases, the only difference between a new PhD student and a final year undergraduate student is a three-month summer break. Yet, compared to undergraduate students, PhD students face very different challenges and responsibilities, different skills requirements and higher standards of performance. No one is born knowing these things – so where do research students find such information?

Many institutions and supervisors provide excellent induction, support and training for research students; sadly, many do not. Even then, most training efforts tend to focus on research methods. Therefore, in many cases, it seems that students find their information (and misinformation) about strategically important issues in their doctoral project *via* what may be described as a form of social osmosis that derives from other research students, supervisors, research staff, and a variety of fragmented sources!

Experience is a valuable teacher, and an important view of the doctoral research project is that it is an opportunity to learn the craft of research, which relies strongly on learning by doing, and sometimes involves learning from mistakes. I agree with this view; some mistakes offer a very rewarding learning experience and are an important element of research training and practice. Nevertheless, other mistakes offer a minor learning experience and, too often, research students receive hard lessons from needless mistakes that could easily be avoided. For the sake of a lack of a little relevant information, these needless mistakes are repeated anew by successive cohorts of research students. In addition to being intensely frustrating, this is also a costly learning process in terms of finance, time and research quality.

This book aims to provide information that will help avoid some of these needless mistakes. It also aims to inform and advise research students on many of the important facets of postgraduate research. These include, for example: a clear understanding of what it means to conduct research at doctoral level; an awareness of the importance of conceptual development and critical evaluation; the ability to plan a research project over a substantial period of time (which requires strategic thinking and detailed planning); responsible research practice; the effective communication of your research in the written thesis and published papers, and the criteria used in the examination for the PhD degree. To this end, the book provides an overview of the terrain, and although there is no substitute for exploring it yourself, you should be guided away from dangers and pitfalls and toward more traversable ground.

This book is written primarily for research students pursuing a PhD degree; however, with minor alteration in interpretation, the vast majority of the content is also applicable to students pursuing a Master's degree and to undergraduate students conducting a final-year research project.

The PhD degree – variation in implementation

The 'typical' PhD student is registered for a full-time course of at least nine academic terms (three years) during which they pursue original research under the guidance of at least one research supervisor who is a member of staff at a university. The research is evaluated on the basis of a written thesis that is about 60,000 to 80,000 words long and an oral examination. This description, of course, ignores the huge variety of other circumstances that are found. For example, PhD students may be part-time and/or non-national; new PhD students may be progressing directly from an undergraduate degree or may be mature professionals with considerable experience; a supervisor may have little or a lot of experience in either student supervision or research; there may be an oral examination, there may not. Different countries, and different universities within a single country, also have different approaches to the PhD. As an example, many universities in the United States have a PhD programme that begins with a period (about two years) of taught courses and research training, which is followed by about two years of original research. Traditional PhD programmes in many other countries consist of a three-year programme of research that corresponds closely to the above 'typical' scenario. Even then, universities are increasingly adopting

a preparatory year of taught classes, followed by a three-year PhD, the so-called '1+3' approach.

Thus, one of the difficulties in providing guidance for PhD students is the differences in local interpretation and application of regulations pertaining to the PhD degree. Throughout the book, therefore, I repeatedly advise that you consult with your supervisor (or otherwise find out) about the compatibility of the general advice in this book with the specific situation in your university.

The PhD degree – similarity in purpose

Given the considerable variation across institutional approaches to the PhD, it would be a worrying prospect if institutions had unique definitions and expectations from the PhD degree. Happily, this is not the case. The PhD degree, as defined by institutions and as experienced by research students, is generally underpinned by remarkably similar guiding principles and operational approaches. As a result, one can identify research experiences and issues that are widely shared by PhD students (e.g. see Table 3.2), which both justify and facilitate the formulation of general guidance. This book, therefore, is structured around important elements of the research process as experienced by doctoral research students; although the product of their research differs significantly across different research disciplines, the research process has many shared activities (see Chapter 1).

Outline of the book

Research students encounter different challenges as they progress through their research degree. The book is structured so that the earlier chapters are more relevant to postgraduate students who have just begun their research, whereas the later chapters are more appropriate to students who are nearing completion. Nevertheless, I would advise students at the beginning of their research degree to at least skim through the whole book so that you are aware of the content and can consult the appropriate sections in more detail as your research progresses.

Chapter 1 provides some indication of what to expect when doing a PhD, and focuses on the expected standard from doctoral research. An awareness of such issues is crucial if the doctoral thesis is to meet the required level of quality when it is examined. The chapter finishes with an overview of the educational benefits of a PhD degree, including a

description of the range of skills that you will learn and implement during your doctoral project.

The relationship between students and their supervisor is a defining feature of the doctoral experience. Chapter 2 discusses the duties and responsibilities that supervisors should undertake; similarly, the duties and responsibilities of the PhD student are described. The chapter provides guidance on how to maximise the benefit of the finite amount of time that your supervisor can devote to your project. Some common problems associated with research supervision are discussed, along with some preventative and ameliorative strategies.

Project management is increasingly being recognised and adopted as a practical approach to help PhD students to manage their project. Chapter 3 introduces the principles of project management that are most relevant to PhD students, and focuses on different issues to be addressed when planning, scheduling and implementing your doctoral project. Specific examples are provided, and there is a consideration of the role of project management in facilitating the process of discovery that underpins original research.

Chapter 4 focuses on the aim of the literature review to provide a critical evaluation of a body of knowledge (an important requirement of the PhD thesis), and describes a number of strategies and examples. Chapter 5 discusses the process of writing and the importance of writing as a method that not just assists, but *is part of* your thinking, learning and understanding of your research subject. The written thesis must address the examiners' expectations of it, and this chapter suggests several strategies for doing so, along with relevant examples.

Chapter 6 gives an overview of the process that is typically involved when publishing your research in a journal. For example, it addresses the pros and cons of publishing during your PhD project, and discusses entitlement to authorship. The peer review process is described and there are examples of the issues that journal referees identify in their reports on submitted manuscripts.

Chapter 7 discusses the examination for the award of PhD degree, which is comprised of the examination of the thesis and the oral examination. Examples are provided of the criteria that are used in the examination of the PhD. The chapter concludes with a consideration of how PhD graduates may expect their skills to translate into professional practice in their future career.

Although this book aims to cover some of the common research processes that PhD students implement and issues that they encounter, it does not, and could not, cover all of them. A (very) much larger book

would probably include a discussion of the principles of research design, statistical analyses, presentation of research findings (orally or by poster), financial issues, the added challenges of being registered part-time or studying abroad, the use of computer software, intellectual property rights, and so on. I certainly do not consider such issues to be unimportant. However, I believe that the treatment of strategic research processes dealt with in this book will enable you to deal with other such issues in two ways. First, through being more aware of your responsibility and ability to manage your research project and your professional development, you will more quickly recognise an ‘issue’ when it arises. For new PhD students, this is often a problem – they are simply so new to the postgraduate research culture that they are unable to recognise which issues affect them. Second, having identified an issue, you will be more aware of the various sources of help and assistance. Remember, *no one is born knowing these things*. Locate and read the information that can help you, and don’t be afraid to ask your supervisors and fellow research students for guidance.

Throughout the book, relevant examples are used to illustrate various points. The subject matter of the examples is intended to reflect a variety of disciplines across the sciences, social sciences and humanities. The examples should be easily understood, and the research principles being illustrated should be applicable across many disciplines. There are also a number of Exercises that encourage you to engage with the issues on a more personal level, and provide an opportunity to reflect on how the content of a chapter or section applies to your specific research project. These exercises may be challenging or time-consuming to varying degrees, but they should provoke you to evaluate your understanding of what it means to undertake research that attains a doctoral standard. The relatively modest effort to conduct these exercises will be well worth it.

Each of the chapters in the book concludes with a selection of recommended publications and online resources that direct you to further reading. The selected reading is not intended to be exhaustive; however, the examples provided have been selected for their relevance and readability. At the time of writing, all website addresses were working correctly. However, website addresses are notoriously ephemeral as material is removed or, more often, the web address is changed. I provide the full title of the online resource, so that if the web address changes, the material may be found again by entering the title into a search engine.

Finally, please note that none of the content in the book overrides the institutional rules and regulations of the university where you are

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registered. While there is no substitute for real-world experience, research students can learn to better anticipate and prepare for the challenges and problems that inevitably arise during research projects. My hope is that this book can help the learning experience of research students, thereby improving the quality of their research training, research output and career development.

The PhD research degree

Introduction

Being a PhD student is considerably different from the experience of being an undergraduate student. Undergraduate education is characterised by a reasonably well-defined curriculum for which taught classes are largely controlled or facilitated by a lecturer. The curriculum tends to focus on well-established knowledge that is the product of a research discipline. Handouts are provided, textbooks are recommended, and you are one of a group of peers participating in the same course and sharing many of the same experiences. There are several stages of assessment, and past exam papers are available that serve as a clear guide to the expected standard.

In contrast, there is no curriculum for the PhD: in effect, *you* design the curriculum for your PhD project (with assistance from your supervisor). As well as mastering the generally accepted knowledge of a research discipline, the need to undertake original research requires doctoral students to master the development and understanding of uncertain knowledge. A major feature of doctoral research is this engagement with the development of new knowledge, as well as the evaluation of uncertain and tentative knowledge.

Given that new students will be inexperienced and unaware of the nature of the PhD research degree, this chapter provides guidance on some important issues. I briefly discuss the main purpose of the PhD and relatively common issues that arise for students doing a PhD. Considerable attention is given to the standards associated with doctoral research and the requirement for doctoral research to display 'independence', 'contribution to knowledge', 'originality', and 'suitability for publication'. A final section discusses the educational benefits of doing a PhD, and how these may be expected to contribute to your professional development.

The nature of the PhD: an overview

The implicit expectation of a PhD degree is that the doctoral graduate is capable of *independently* conducting original research of a standard that is expected of professional researchers in their particular discipline. The requirement for originality and the ability to work independently make your PhD 'curriculum' a very personal and distinct entity; because of this, there can be considerable uncertainty involved as you prepare, create, focus and plan your PhD programme. However, the ability to cope with uncertainty at a personal level, and to resolve uncertainty in the design and interpretation of original research is part of becoming an independent researcher. In time, you will appreciate that the enjoyment and satisfaction derived from research are intimately associated with such efforts to identify, understand and investigate uncertainty.

Phillips and Pugh (1994: 19) discuss the nature of the PhD degree and place considerable emphasis on the doctorate as recognition that the holder is a fully professional researcher, meaning that they can do the following:

- Can produce research that is of interest to other professional researchers.
- Have a command of the subject to the extent that they can evaluate the work of other researchers.
- Are astute enough to identify where they can make a useful contribution.
- Are able to communicate their results at a level that is appropriate to an audience of professional researchers.

The ultimate aim of the award of a PhD degree, therefore, is a recognition of both your ability and status as an independent researcher, and your learning and implementation of high-level skills. Indeed, a strong implication of the emphasis on becoming a professional researcher is that the process of the PhD (learning and practice of high-level research skills) is at least as important as the product of the PhD (the research findings in the thesis). This distinction between the research training process of the PhD and the research product of the PhD is important: you need to maintain your focus on not just producing a specific piece of original, high-quality research, but also on your training and learning to be a researcher who is more generally capable of conducting original, high-quality research:

You are not doing some research for its own sake; you are doing it in order to demonstrate that you are a fully professional researcher, with a good grasp of what is happening in your field and capable of evaluating the impact of new contributions to it – your own as well as others'. That is what you get the doctorate for.

(Phillips and Pugh 1994: 60)

New PhD students commonly consider – mistakenly – the PhD to be a single great piece of work that makes a major contribution to the research discipline. Unfortunately, this perspective over-estimates what is required. In contrast, experienced researchers and supervisors place considerable emphasis on the doctoral research project being both manageable and achievable (see Chapter 3):

[T]here are two views of the PhD: a perfect small-scale piece of research study, or a worthwhile learning experience. There is a third view which students often begin with and have to be talked out of: it is a topic or a problem so complex and enormous that it would take a lifetime's work to complete.

(Lawton 1997: 8)

Supervisors are aware that it is adequate for a thesis to make an incremental contribution to knowledge and understanding – a PhD does not have to inspire a revolution in thinking about a research discipline. As one examiner put it, '... A PhD is three years of solid work, not a Nobel Prize.'

(quoted in Mullins and Kiley 2002: 386)

Although Lawton (1997) distinguishes between the PhD as 'a perfect small-scale piece of research study, or a worthwhile learning experience', these two views are not mutually exclusive. Again, new students often under-estimate this view of the PhD as a learning experience; however, it is inevitable that you will have to learn and implement a variety of new skills, especially during the first year. As a personal example, most of the first year of my PhD was spent attempting to investigate the toxic effects of agricultural chemicals on beetles, however, an account of these initial experiments never appeared in my thesis. I lacked confidence in the research methods that I had originally used, largely due to the methodological insights gained later in my doctoral research. Back then, I deeply resented the time that I had apparently 'wasted' on that work, but now

appreciate that the experience and insight provided by the first year of my research prepared me to properly investigate my research questions in the second and third years.

Features of being a PhD research student

One of the major challenges when doing a PhD is that *you* are responsible for managing *your* progress. This cannot be over-emphasised. Throughout the PhD, there will be important decisions to be made. Thus, many elements of the PhD programme require your exercise of judgement on big issues (Which research questions should I focus on? What is my evaluation of others' research? What research methods should I choose? What assumptions am I making in my choice of research methods?) and on smaller ones (Where do I seek permission to use this piece of equipment? Who should attend this meeting?). Although your exercise of judgement may be challenging and demanding at times, it is also empowering, and is a hallmark of your development as an independent researcher. Of course, this is not to say that you will work in complete isolation with little or no assistance; you will have (and are entitled to) support and guidance from your supervisor and others. Ultimately, however, achieving the award of PhD degree is *your* responsibility.

One implication of such responsibility is that your motivation for undertaking a research degree is essential for your success. You will need to persevere through sometimes tedious and repetitive work and at other times some very challenging and difficult periods of study. Unfortunately, over a relatively long research period, it is also likely that you will experience some form of personal crisis, such as relationship problems, or an illness or death in the family. It may be difficult to sustain yourself through such academic and personal challenges for the duration of the PhD unless you are highly motivated and focused.

Cryer (2000: 12) indicates the following motivations that are likely to bring success:

- developing a trained mind;
- satisfying intellectual curiosity;
- finding a challenge when one feels 'in a rut';
- experiencing and engaging with an academic community;
- contributing to knowledge;
- fulfilling a lifelong ambition.

Despite (or maybe because of) the challenges, successful PhD students generally enjoy doing research and derive considerable satisfaction and reward from undertaking a doctoral research degree. They engage totally with their research topic, enjoy reading about it, and relish the opportunity to make their own contribution. To get through the difficult periods that inevitably arise, it is important that you are genuinely interested in the topic in which you will specialise for a number of years, and for which you will make many personal sacrifices:

Be absolutely sure you love your field enough to give up time, money, effort, and sweat . . . If you're not 100% certain, then do something else for a while. It's a wonderful, exhilarating, horrible, frustrating process; you'll be poor for years, you'll work like a dog, your advisor will probably kick your ego around a bit, so if you're not passionate about your field you'll probably have a hard time. On the other hand, it can be a great experience. I'm glad I did it, but I can't say it's been easy.

(PhD student, quoted in Golde 2001)

Exercise 1.1

- 1 Why do you want to do a PhD? List your reasons in order of importance.
- 2 What are your career plans for five and ten years time and how will a PhD degree contribute to your career development?

Expected standards of doctoral research

When you set off on a car journey, major decisions on your route are dictated by the starting point and the nature of the destination, e.g. in which direction to travel, how much time it takes to get there, how many stops to make and what your destination looks like as you approach it. Importantly, the end of the journey influences decisions that are made even *before* the journey begins. In a similar way, an understanding of the end-point of the PhD degree should influence how you embark on your research project. Thus, knowledge of the expected standards of the PhD degree will help you plan your PhD project in a way that consciously addresses such requirements. This section discusses in detail the question:

What constitutes research at doctoral level? (the ‘destination’ of a PhD); later chapters will look at the means by which you achieve doctoral research (the ‘route’).

It is essential that you know the expected standards for doctoral research if you are to adequately plan your research objectives and assess your progress. There are at least four main methods to understand the expected standard of research at doctoral level:

- 1 Identify the regulations and expectations as set out in formal university documents.
- 2 Discuss such issues with your supervisor, other academics and other PhD students.
- 3 Read other PhD theses in your research area (an under-used method).
- 4 Investigate and be aware of the criteria that PhD examiners use to assess doctoral research (see Chapter 7).

In this section, I will focus on the regulations and expected standards.

An improved understanding of the requirements for the award of Doctor of Philosophy (PhD) can be achieved by comparison with the general requirements for the award of Master of Philosophy (MPhil). Although the details vary among different universities, an MPhil usually requires the student to demonstrate an understanding of research methods appropriate to the discipline and to implement research skills necessary to carry out supervised research at a professional level. The MPhil may require originality in the application of existing knowledge, and the ability to critically evaluate current research and understanding in the discipline. The MPhil involves a shorter registration period and the thesis is typically shorter than the PhD thesis and does not have to be of a publishable standard. Overall, compared to the PhD, the MPhil is of more limited scope and less exacting in its demands for originality, depth and scope of investigation, critical evaluation and independence.

The expected standard of the PhD degree is exemplified by the following definition:

A PhD thesis must form a distinct contribution to the knowledge of the subject and afford evidence of originality, shown by the discovery of new facts, or by the exercise of independent critical power. Additionally, a PhD thesis must show work which, if written in a suitable form, would be publishable.

(modified from Cryer 2000: 186)